

Transverse Section of
the Church
BATALHA.

See the Line XIII. XIV. in the General Plan.

*The manner of moving the
Pinnacle into the Arched*

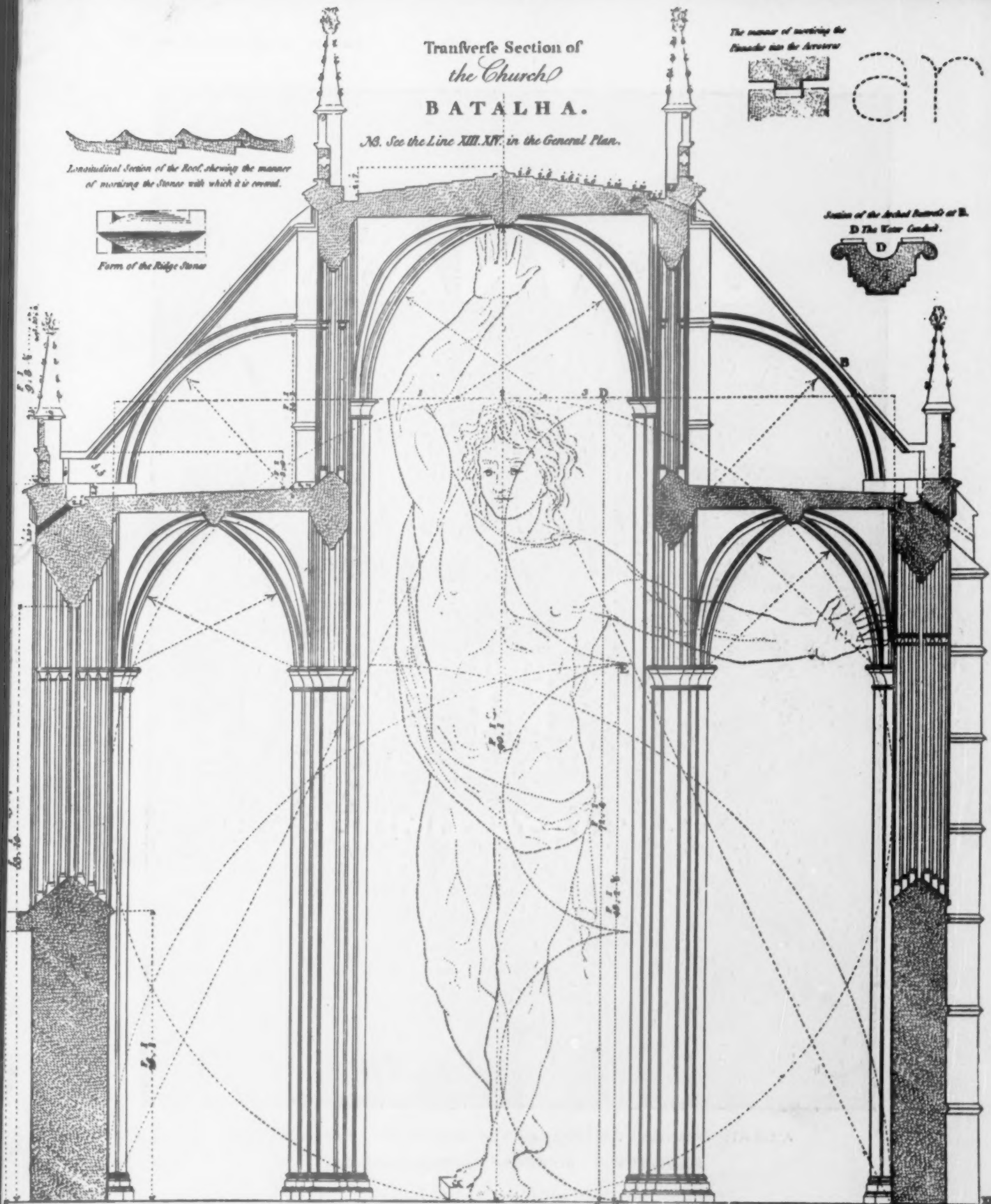


*Longitudinal Section of the Roof, showing the manner
of moving the Stones with which it is covered.*



Form of the Ridge Stone

*Section of the Arched Buttress at B.
D The Water Conduct.*



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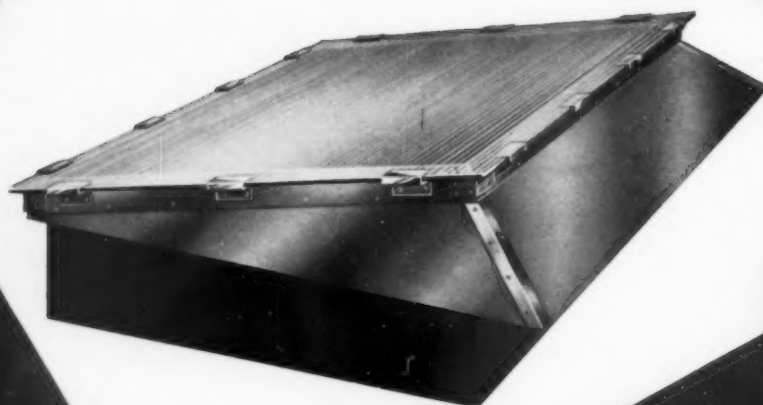
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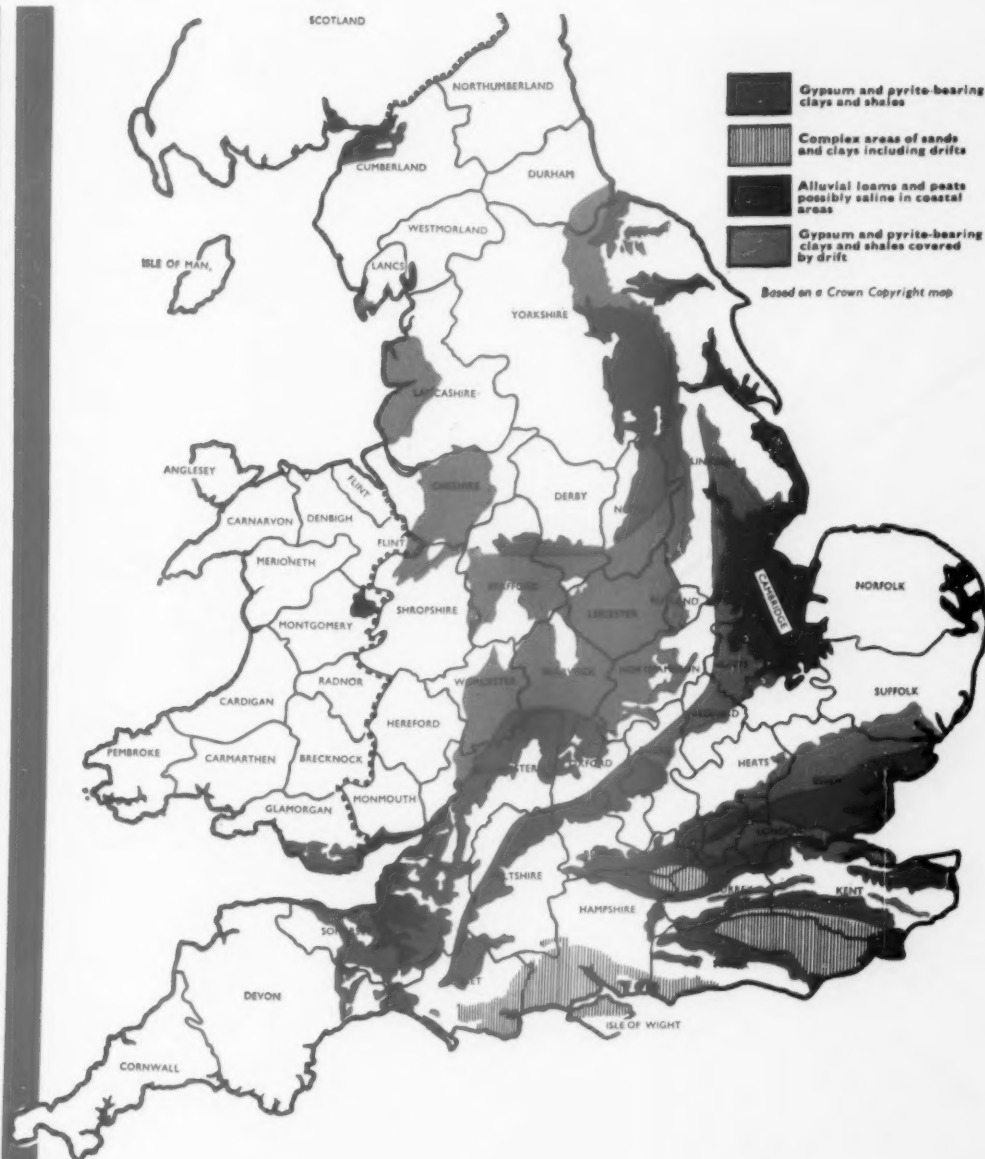
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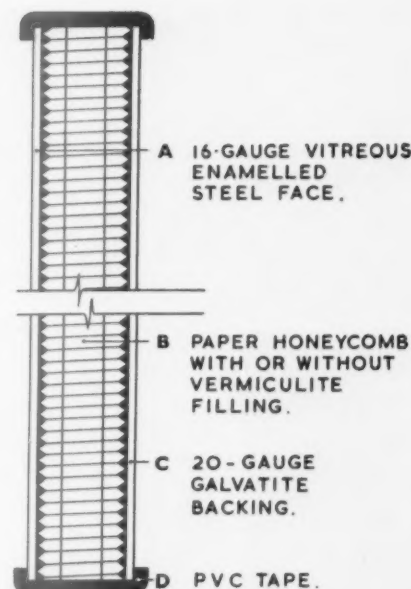
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TYPE 3 The face is bonded with a neoprene-based adhesive to the rigid, water-resistant honeycomb core. If required, the thermal insulation properties of the panel can be increased by filling the honeycomb cells with granular vermiculite. A galvate backing sheet (electro-galvanized steel) is bonded to the rear of the honeycomb core. For affixing letters, the steel facing sheet can be drilled prior to vitreous enamelling. The panel edges are sealed with PVC tape.



'U' Value		Weight per sq. ft.		Panel Thickness	Core Thickness
Without fill	With fill	Without fill	With fill		
·306	·181	4 lb. 6½ oz.	4 lb. 13 oz.	1½"	1"
·304	·152	4 lb. 7½ oz.	5 lb. 1½ oz.	1½"	1½"
·302	·130	4 lb. 9 oz.	5 lb. 6 oz.	2½"	2"



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Contractors: Benson Bros (Bristol) Ltd

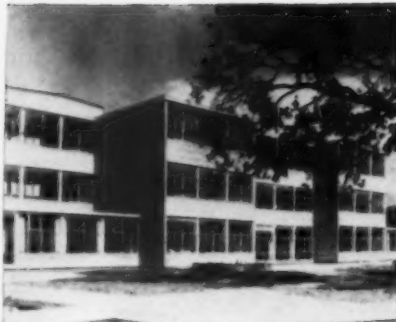
Seaporclad Infill Panels are also being manufactured and used in Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, France, Germany, Holland, Italy, Japan, Luxembourg, New Zealand, Norway, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America.

Full technical information is available from the sole manufacturers in the British Isles: Edward Curran Engineering Ltd, Architectural Division Cardiff. Telephone: Cardiff 33644

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Architect:
W. Kendall, A.R.I.B.A. of M.O.W.
Builders:
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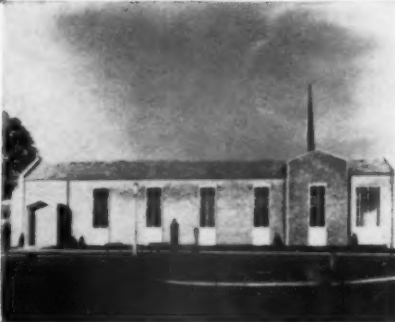
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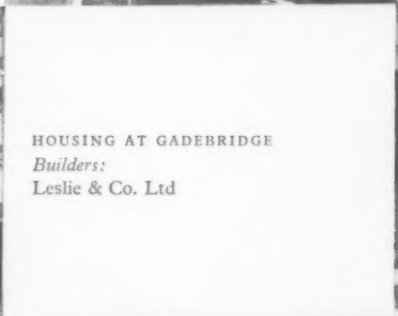
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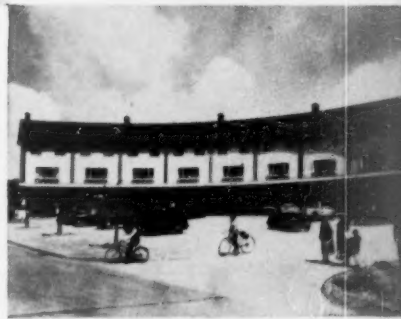
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Hemel Hempstead New Town

Except where otherwise stated, the buildings were designed by the Hemel Hempstead Development Corporation under the direction of the Chief Architect, H. Kellett Ablett, F.R.I.B.A., M.T.P.I.

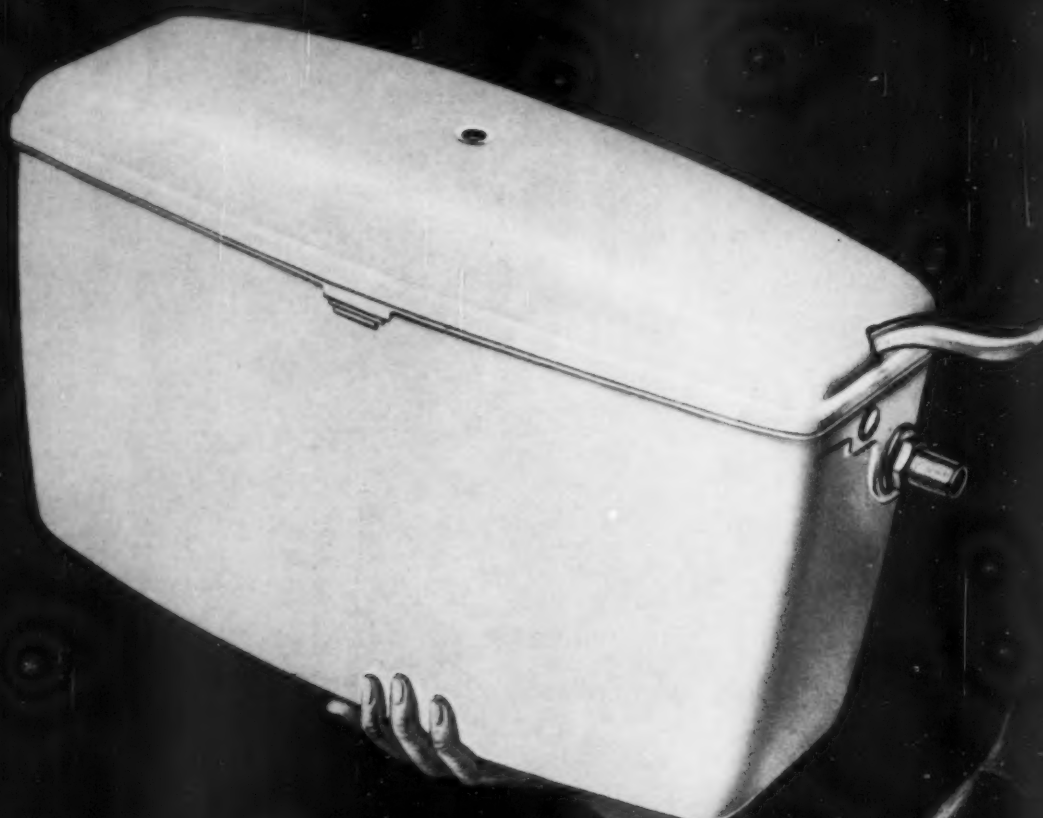
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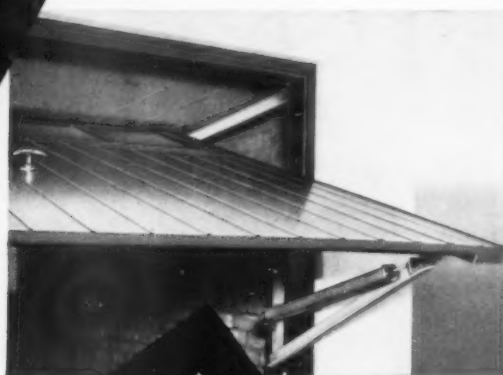
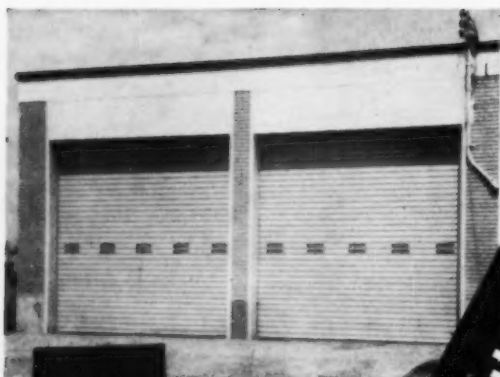
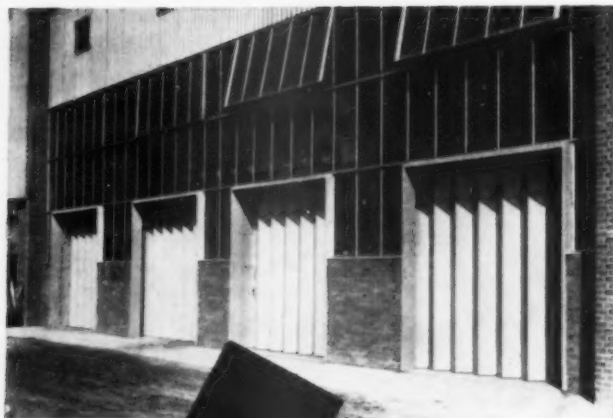
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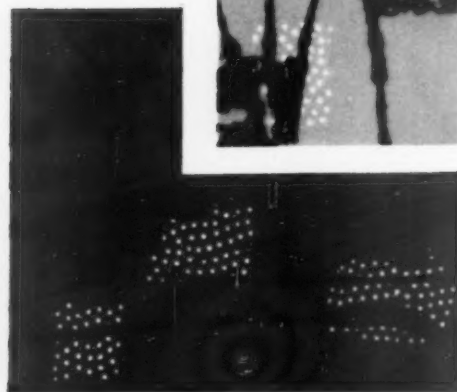
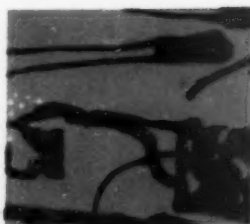
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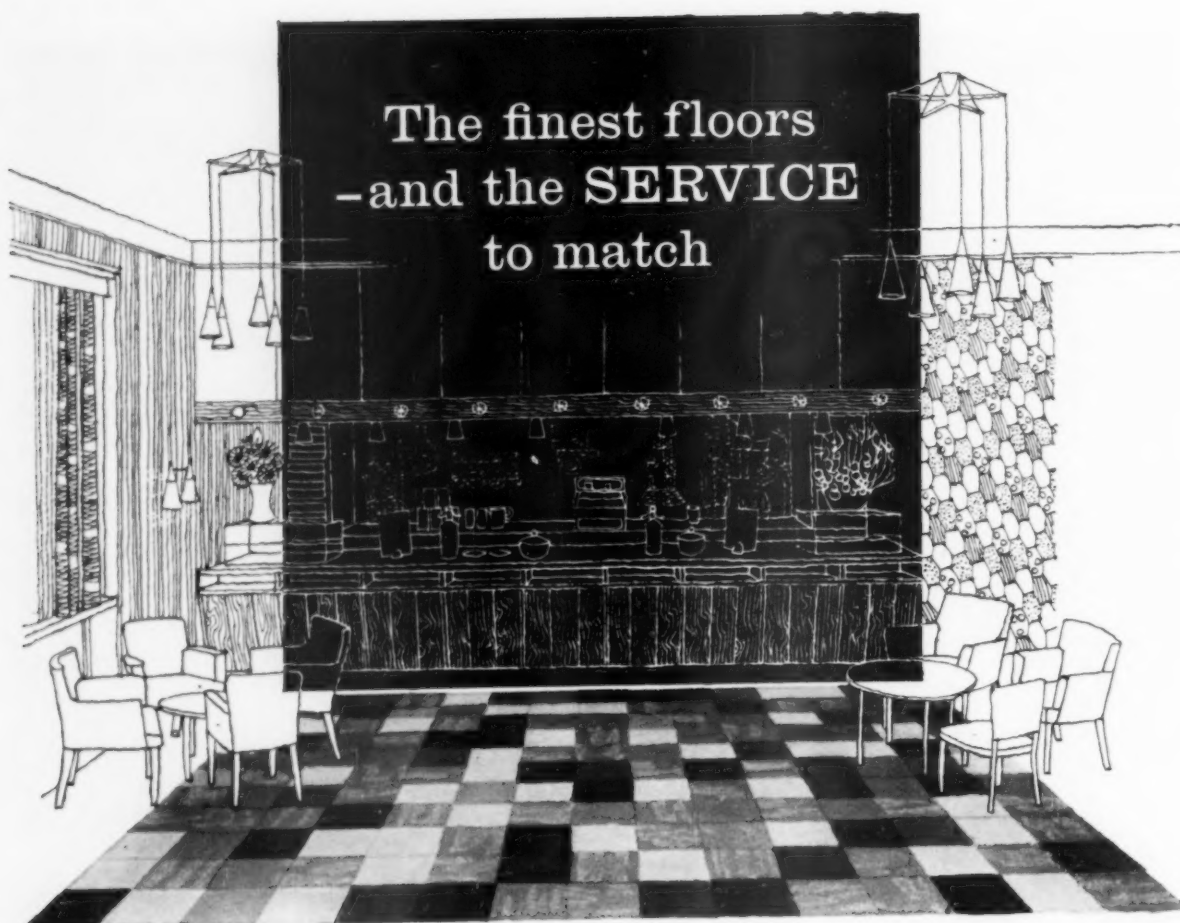
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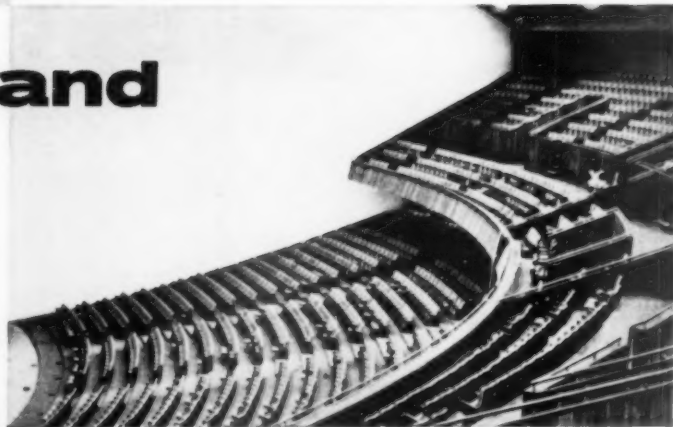
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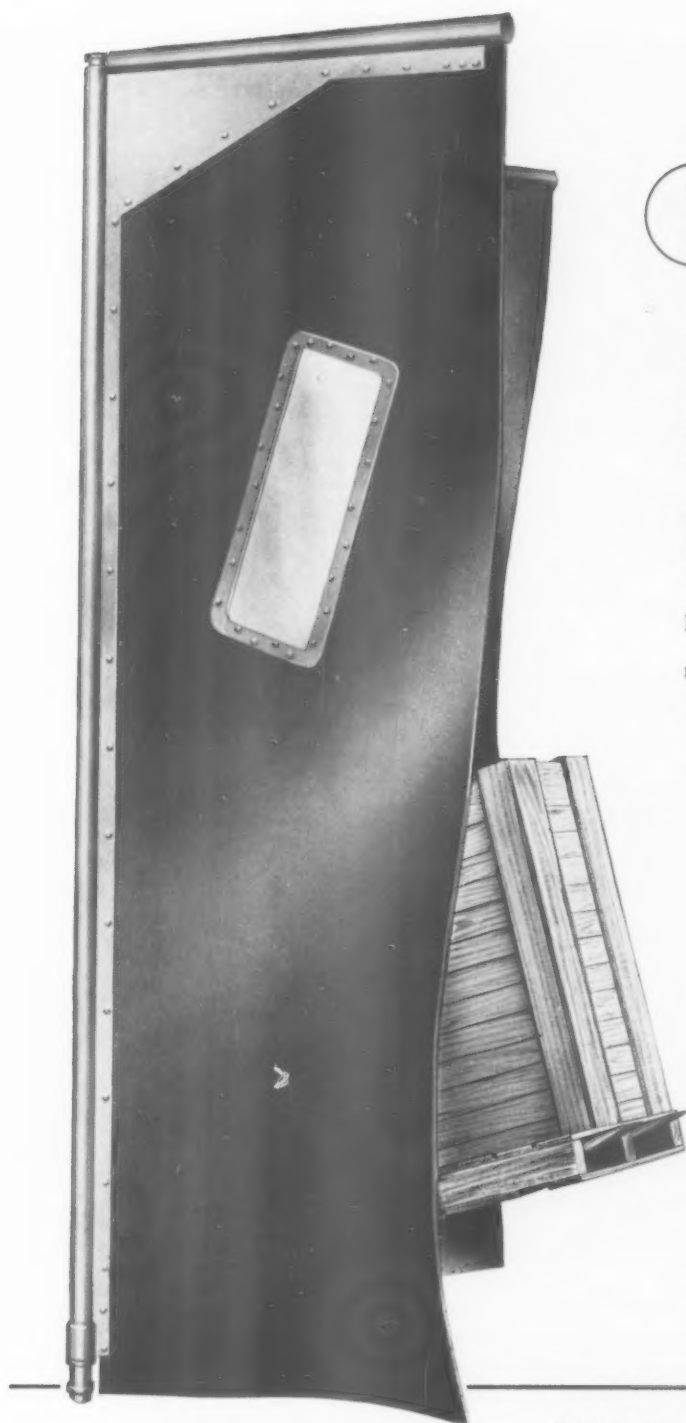
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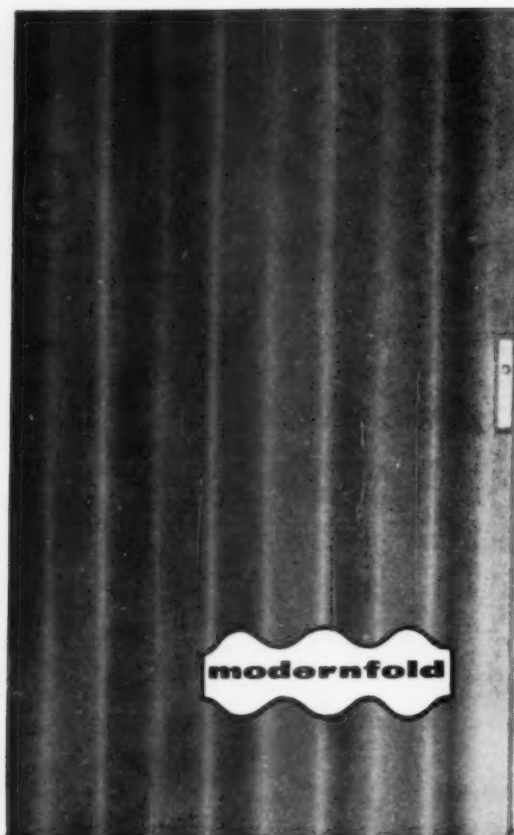
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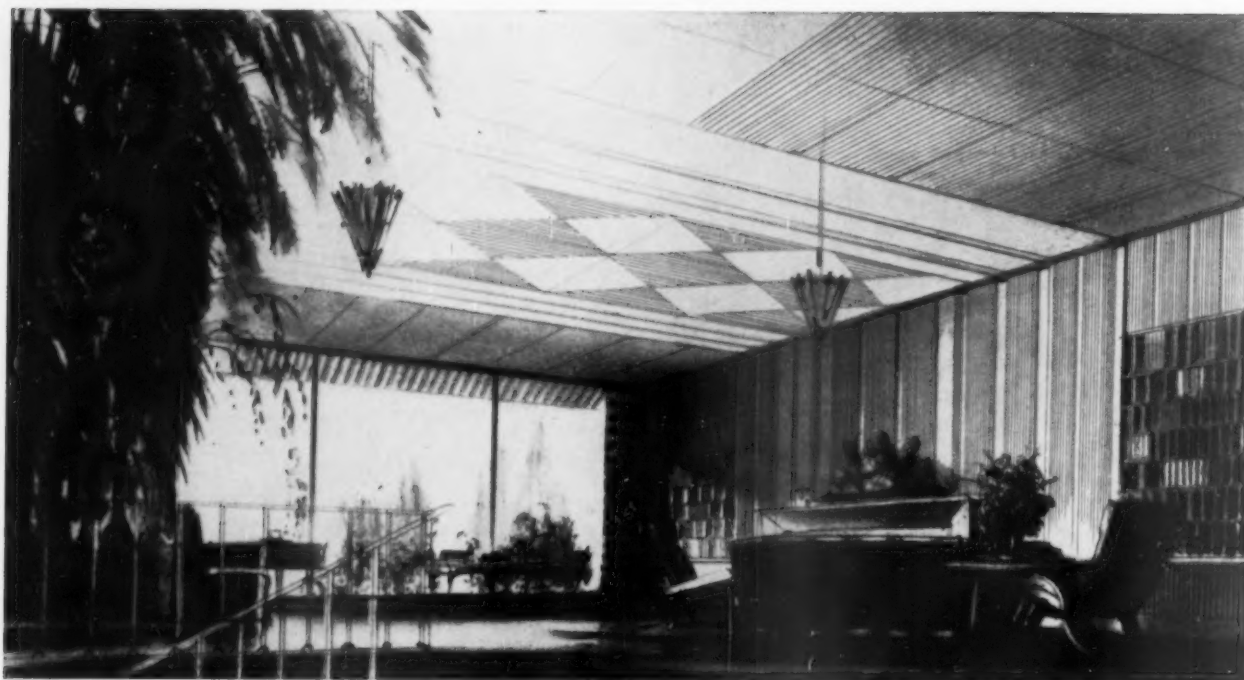
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Consulting Engineer: W. E. Green, M.I. Mech. E., M.I. Plant E., A.M.I. Prod. E., A.M.B.I.M. (Standard Telephones and Cables Ltd., Project Engineer).

General Contractors: Staverton Builders Ltd., Totnes.

Below it is shown the new Middlesbrough General Hospital Accident Wing which embodies some of the most up-to-date hospital equipment.

Architect: P. H. Knighton, M.B.E., A.R.I.B.A. Newcastle.

General Contractors: F. Shepherd & Son Ltd., York.

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Plate 60/8 — Sandro

Design Registration No. 885660

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*Bending and turning and gaily carolling
Loving the feel of the tropical rain
Leaving to Leonard the job of controlling
Once she gets in she just wants to remain.*

*Gone are the quirks of the old fashioned mixer
Everything else but never just warm,
Thermostat Leonard is fitted to fix her
And keep the temp. fast at divinity's norm.*

"Keeping the temp. fast" is just what Leonard control by thermostat does. It turns stone-cold and stinging-hot into steady warm — immovable until the bather moves it. It makes the shower, the Leonard shower, the best bath in the world. That's why the Leonard valve has come to be specified by architects everywhere not just for showers in hospitals and schools, but also in factories and mines and ships.

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for the prevention of fire-spread



FIROLA (Approved) Fire Resisting Shutters are fitted singly or in double sets, one on each side of an opening, giving a minimum fire resistance grading of two or four hours respectively. Manual or mechanical operation, fitted with automatic fusible link apparatus.

Full details see Barbour Index.

Above: FIROLA Shutters (double sets) installed for Messrs. Maple & Co. Ltd. Tottenham Court Road, London. Architects: Dalgliesh & Pullen F/R.I.B.A.

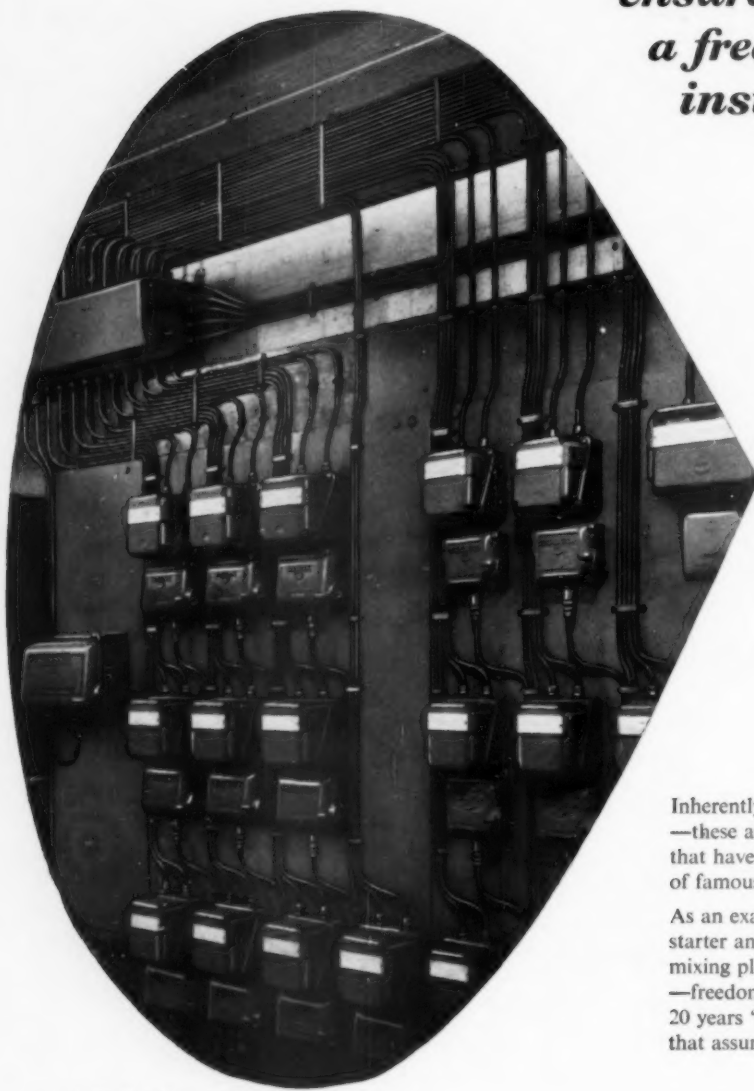
Left: FIROLA Shutters (single sets) installed for Eastbourne Terrace Development, Paddington, London. Architects: C. H. Elsom & Partners.

Haskins

Gnome House, Blackhorse Lane, London, E.17. LARKSwood 2622
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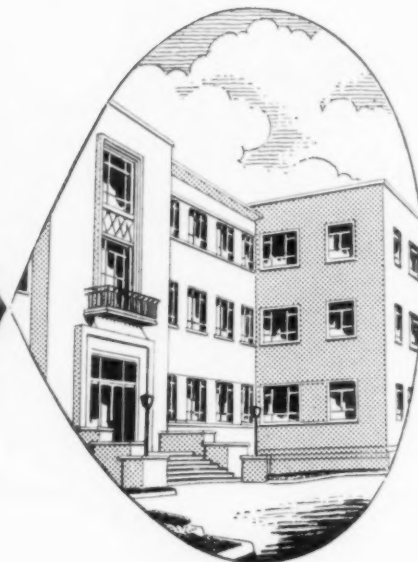
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*ensures
a freedom from fire risk
installation*



Photograph by courtesy of Walpamur Limited,
who carried out this installation.

*non-fire causing—heat resisting—
moisture-proof—non-ageing—rust-proof—
safe against overload—resistant to
mechanical maltreatment—resistant to
noise transmission—*



Inherently safe—unfailing life-long dependability—these are but two of the many unique advantages that have made 'Pyrotenax' the considered choice of famous concerns the world over.

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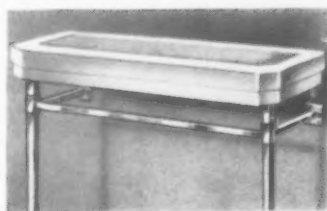
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Riley pressure jet oil burners exploit higher air and oil pressures than are usual today. They are factory-set to give high efficiency.

There are Riley Oil Burners with throughputs ranging up to 700 lb. per hour.

Type HL Burner *High/Low/Off Operation*

For capacities above 10 gallons per hour, incorporating one small and one large air register, each with its own atomiser, to give optimum efficiency whether one or both are in operation. At low flow only the small burner is alight. At high flow both are alight, thus giving an ideal combination for variable load conditions. Design allows for hot oil circulation to both atomisers before ignition to ensure clean start and self cooling of large burner on shut down. Used for most types of heating and industrial boilers, with 220 secs. oil and, on the larger models, 950 secs. or 3,500 secs. oil.

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For Horizontal Shell Boilers. Spill return type atomiser with output range of 3 to 1. Specially developed air register to give clean narrow flame without impingement. Hot oil circulation on starting and self cooling on shut down. Suitable for 220 secs. 950 secs. or 3,500 secs. oil.

Type G Burner *On/Off Operation*

Generally similar to type F burner but uses 40 secs. oil.

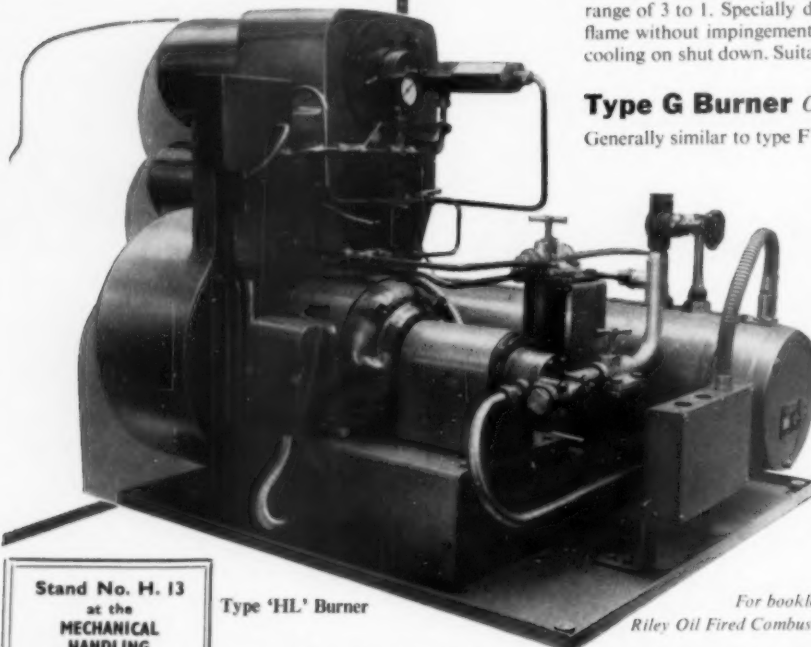
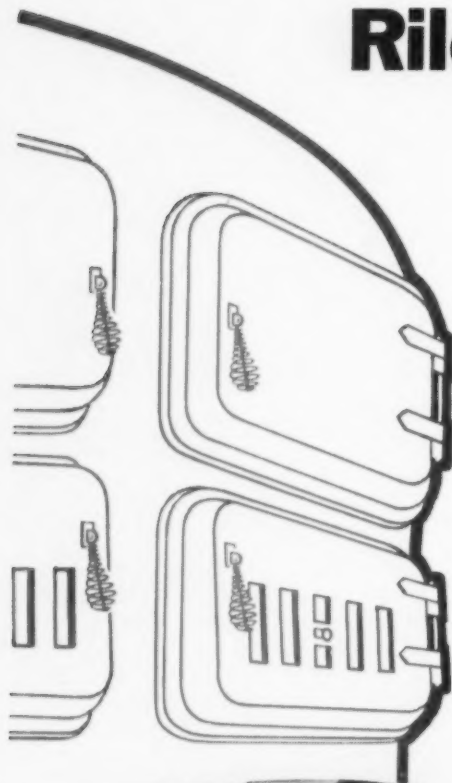
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On/Off Operation

Available in capacities from 20 lb. to 90 lb. per hour, using 220 secs. oil. Factory-set air/oil ratios and pressures give suspended intense flame and do not require further adjustment.

Riley Incinerators

A range of incinerators, for the disposal of rubbish and waste materials, is available. Write for full information.



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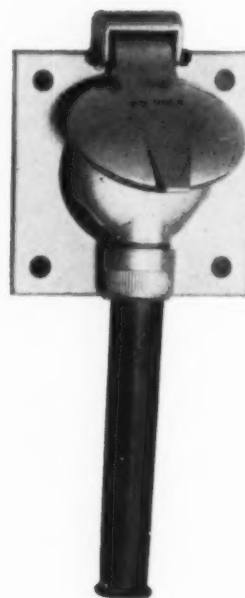
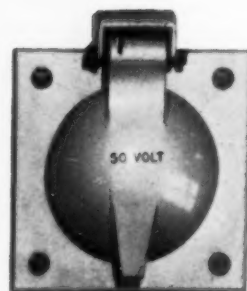
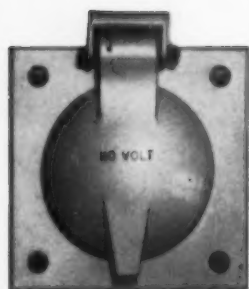
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- ★ constructed largely of non-ferrous metal
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for small bore heating



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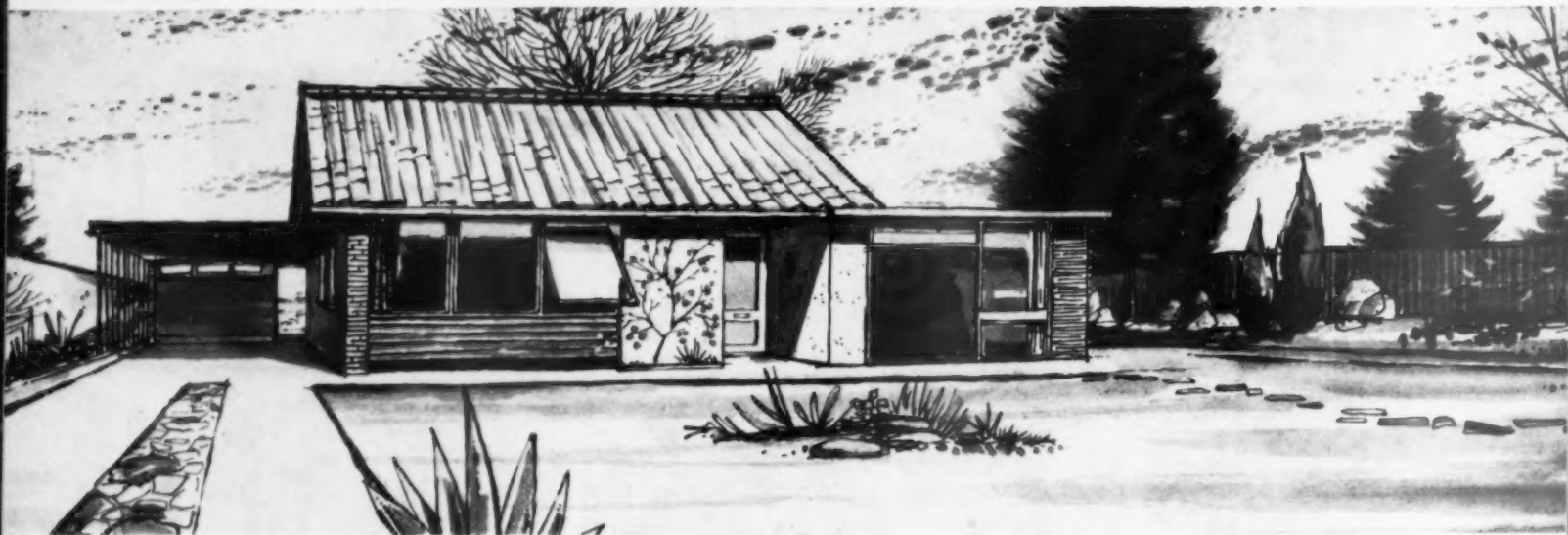
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CTC

HOT NEWS FROM SWEDEN



a new concept in central heating

NEW BOILERS TEN YEARS AHEAD IN DESIGN AND FUEL-SAVING EFFICIENCY

Ten years ahead? Some say twenty. But these are opinions and you want facts. Here, then, are some facts. First about C.T.C. This is one of the biggest boiler-making concerns in Europe. Headquarters are in Sweden but the boilers themselves are cornering the market wherever Europe wants warmth. They are doing the same here. And for the very good reason that there is nothing else like them; nothing else remotely as efficient. C.T.C. boilers don't play at central heating. They give it in full. With constant, practically unlimited hot water available. What makes C.T.C. boilers so much more efficient? A host of things but primarily these.

BUILT-IN INDIRECT CYLINDER

The hot water cylinder is built into the boiler. And the

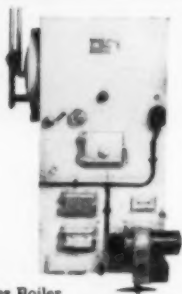
whole boiler insulated with glass wool. There is no heat loss there—or between cylinder and boiler. (For soft water areas, boilers are fitted with a copper-lined cylinder at no extra cost.)

THERMOSTATIC CONTROL

Again part of the boiler. Pre-set the mixing valve and every room stays at precisely the temperature you want it—in any extremes of weather.

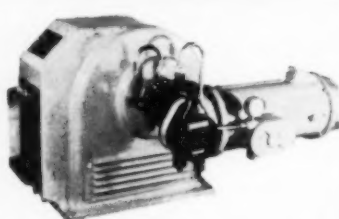
SWEDISH STEEL

C.T.C. boilers are made of Swedish steel, renowned the world over for its quality. Proven to be more efficient for heat transfer. And for lifetime protection against corrosion C.T.C. boilers have aluminised flue ways.



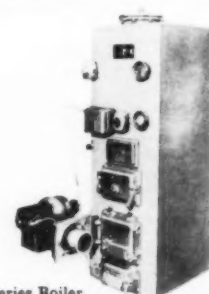
260 Series Boiler.

Designed with two separate combustion chambers so that oil or solid fuel can be used independently without alteration. Refuse may be burnt while oil burner is in operation. Cylinder capacity from 27 to 52 galls. BTU/HR 88,000—240,000.



C.T.C. Type 'M' Emulsion Burners are designed to burn 200 seconds oil *without pre-heating*. They are equipped with photo-cell control and can also be arranged for High/Low or Modulating control.

Standard models made in five sizes rated from 400,000—6,000,000 BTU/HR. These burners may be used with heavy fuel oils. Tank and line heating being required only for 960—1,500 and 3,500 secs. Redwood No. 1, 100°F.



160 Series Boiler.

Type 162 is designed to operate efficiently on either oil or solid fuel. Has single combustion chamber, but with hinged burner. This permits waste disposal and solid fuel burning without alteration to the boiler. Rating 70,000 BTU HR TOTAL. Cylinder capacity 23 galls.

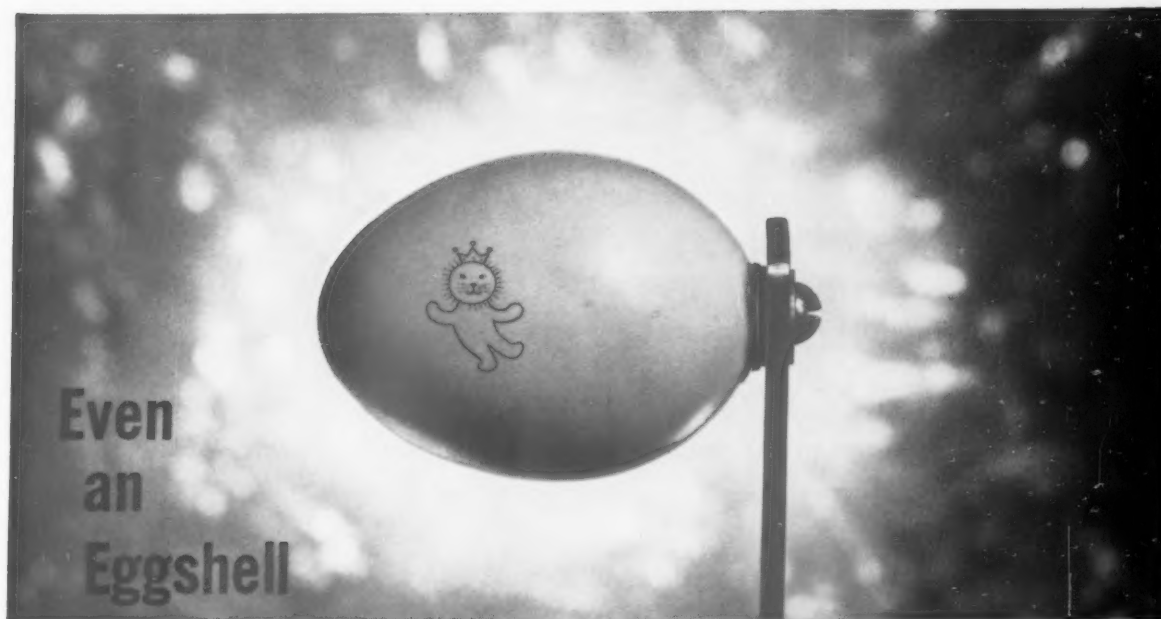
There's a lot more you should know about C.T.C. boilers. Just post us your letter heading and we will send full details by return. You will be well rewarded.

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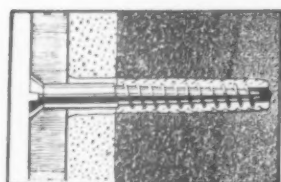
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be
Screw-fixed with a **RAWLPLUG
FIXING DEVICE!**

If you live to a hundred, you are unlikely to want to do much screw-fixing of eggshells! Yet this feat—possible only with a Rawplug Fixing Device (a Rawnut)—does serve to highlight the astonishing effectiveness of these Devices in making 'difficult' and even 'impossible' fixings simple and straightforward. Whatever the screw or bolt fixing job, you'll save time, money and temper by using the appropriate Rawplug Fixing Device.

RAWLPLUGS

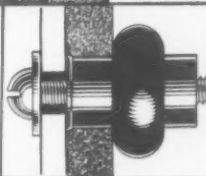
The famous Rawplug makes firm screw fixings in masonry in a mere fraction of the time taken by any other method.

For all screw sizes up to 1" diam. coach screws.



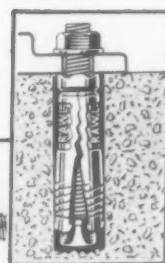
RAWLNUTS

The amazing Rawnut forms its own 'rivet head' behind the material when screwed up from the front. Shakeproof and waterproof, it has many valuable uses in both building and manufacture.



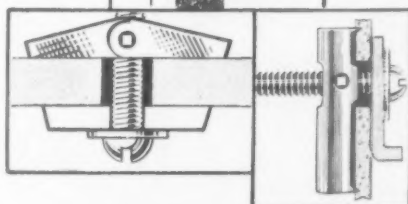
RAWLBOLTS

For light or heavy bolting jobs. A dry fixing of enormous strength—no cold chiselling, no waiting for cement to harden. In all bolt diameters up to 1".



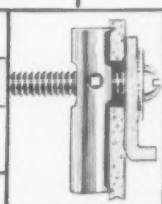
SPRING TOGGLES

For making firm fixings to such thin and structurally weak materials as plasterboard, ceilings, etc. The wings of the device spring apart behind the material and spread the load over a wide area.

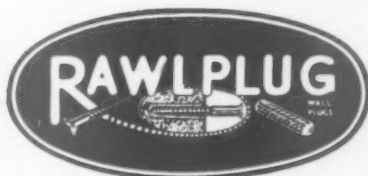


GRAVITY TOGGLES

Passed through a hole in hollow material, the long member falls into a vertical position by gravity, and is then drawn against the back of the material by screwing from the front.



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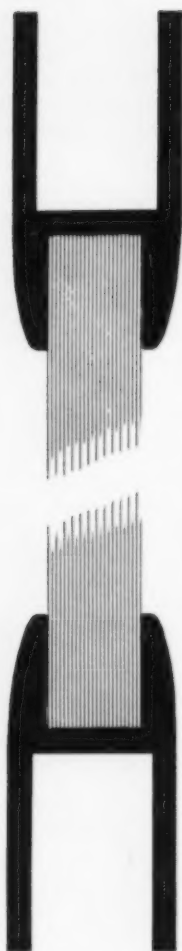
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2" DEEP RAILS FOR MAXIMUM GLASS AREA
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FIELDS OF APPLICATION

for this type of passenger conveyance are manifold and important: in tunnels to and from railway stations, between different levels at subway stations, between passenger lounges and planes at airports, between Customs controls and boats, at sports arenas, at traffic crossings, from parking lots to shopping centres, and at industrial enterprises as a connecting link between main buildings, etc.

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will be perfect...



NOW WHICH SIZE?

It's no problem! Whether the plan allows for a small or large bathroom, there is a Bilston Atlanta that will fit. Selected for the Design Centre, the Atlanta is made in five sizes. Every home owner will enjoy the bath that has the famous Bilston finish and durability, and the skilful design that makes the Atlanta the safest, most comfortable bath of all. The Atlanta costs no more than an ordinary bath.

54"

60"

66"

61"

72"



All this with the ATLANTA-

Flat bottom

the Atlanta flat bottom helps to prevent slipping... ensures comfort. Particularly suitable where a shower is to be fitted.

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the low sides make the Atlanta safer for young and old. It can be fitted to give an overall height of only 16".

Taps

can be fitted centrally, or on either corner to facilitate installation and maintenance.

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the Atlanta is supplied with or without overflow... with or without hand grip. The feet can be adjusted to accommodate all types of trap, including the Bilston "Wasteflo" pre-fabricated waste, trap and overflow unit. Also available with the Bilston O.P. Hand Grip specially designed to meet the needs of the elderly or infirm.

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the Bilston range includes white or the exact colour required for any decorative scheme.

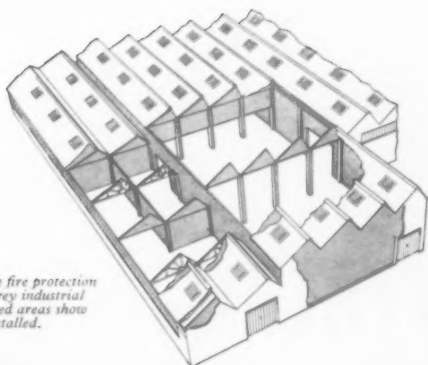


- Atlanta
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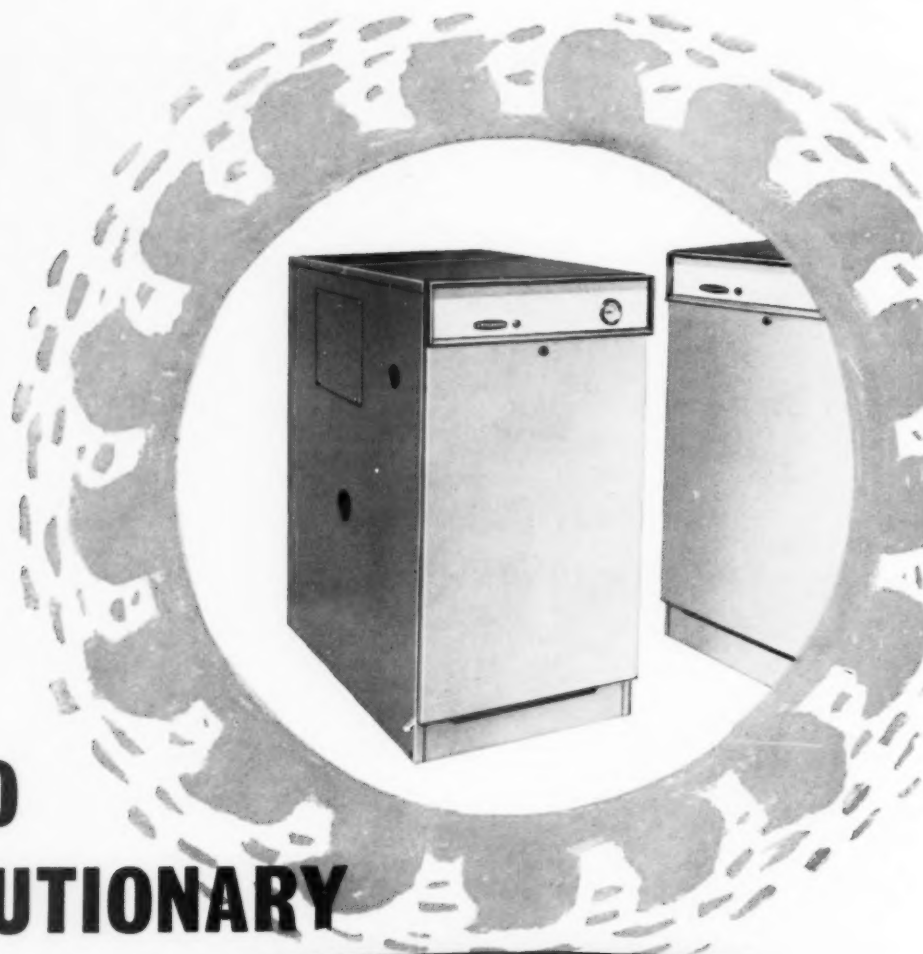


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AX46/F



TWO REVOLUTIONARY NEW **EASIFIRE**

OIL-FIRED BOILERS

Two new models, giving outputs of 85,000 and 110,000 B.Th.U.s respectively, are now added to the Easifire range. Both are revolutionary in conception, and extraordinarily intriguing in every respect.

In brief, the new E 80 Easifire (85,000 B.T.U.) dispenses with the need for hot water storage tank or calorifier—yet provides unlimited quantities of hot water at the turn of a tap—it also supplies the central heating system. Fully automatic, electronic controls dictate the highest efficiency and economy in use. The cabinet has an attractive two-tone enamel finish, cat's eye indicator and dial thermometer. Dimensions are 46" high, 22½" wide, 34" deep.

The Easifire E 100 is similar in appearance and size but gives a higher output of 110,000 B.Th.U.s.

The original and now very popular Easifire model OO is, of course, still available and with an output of 30,000 B.Th.U. provides ample hot water/central heating for a two or three bedroomed house.

Full Guarantee—24 hour Service

Every Easifire carries a full guarantee and Free Service for 12 months after installation. This service is country-wide and ensures that, should the need arise, prompt attention is available—no matter where in the country an installation might be, if it needs attention we will get a man there in 24 hours.

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Please write for leaflet giving full details of the new Easifire models.

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comes a new acoustic
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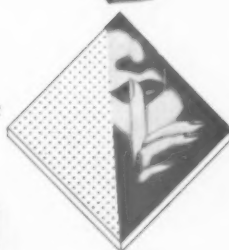
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Never before has there been a Sound-Absorbing Tile like this . . . a tile with *built-in* efficiency . . . a tile with *built-on* appearance . . . a tile that combines eye appeal with very high acoustic efficiency . . . a tile from CELOTEX.

For this is NEW ACOUSTI-CELOTEX, made from the world famous Cane Fibre . . . a perfect material for sound absorption . . . plus a new white finish . . . and backed by over 30 years of experience in acoustical engineering throughout the world.

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number seven
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Cementone Number Seven Exterior Flat Finish is designed specially for the decoration and protection of all exterior wall surfaces. It is also available as an Interior Flat Finish. Number Seven Flat and Gloss Finishes are suitable for Interior or Exterior, new and old surfaces.

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| Cementone No. 3 | Transparent Waterproofer |
| Cementone No. 5 | Concrete Floor Binder |
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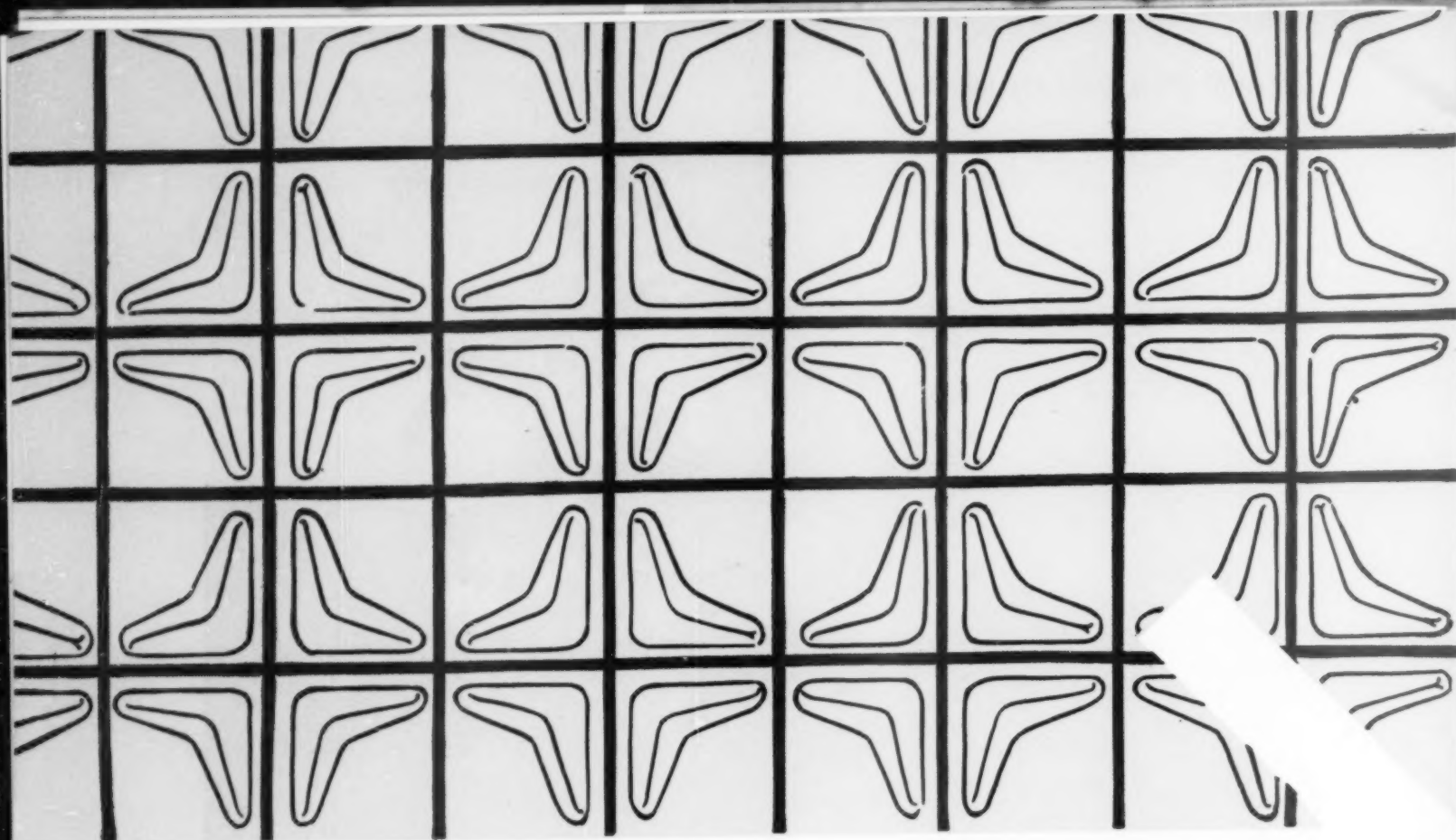
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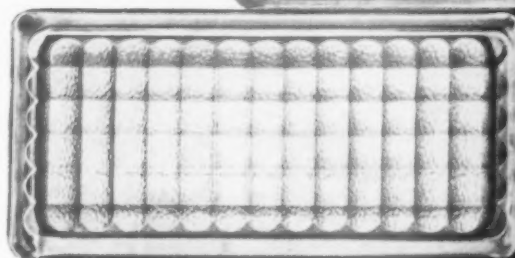
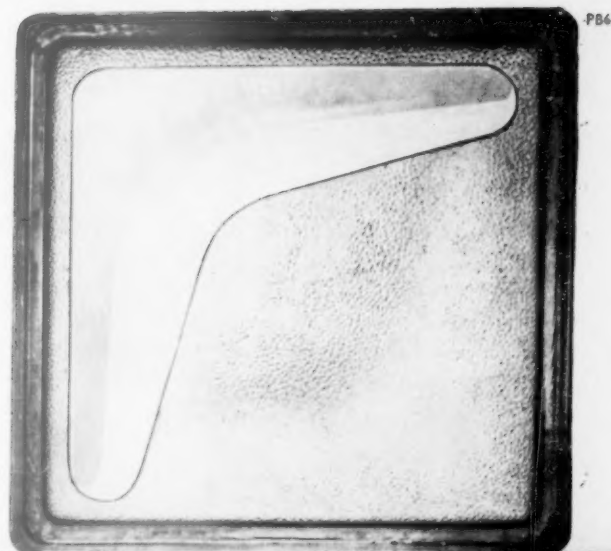
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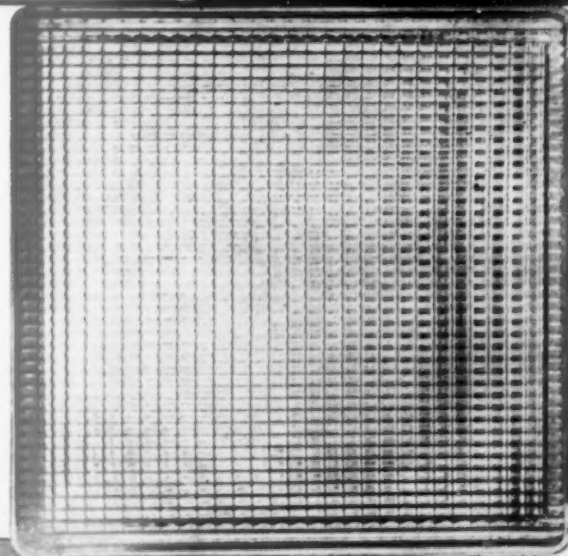
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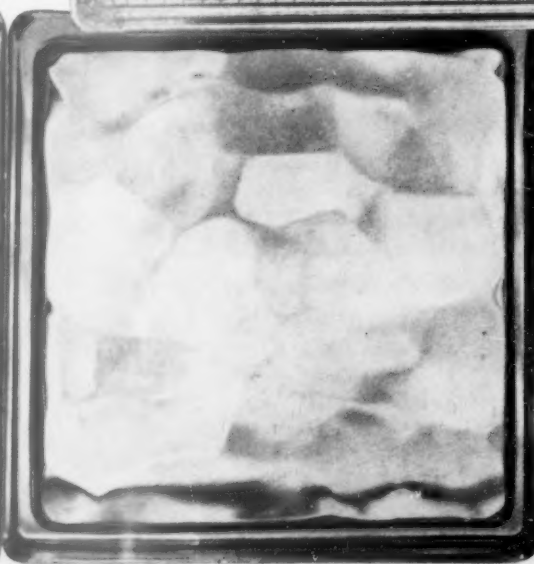
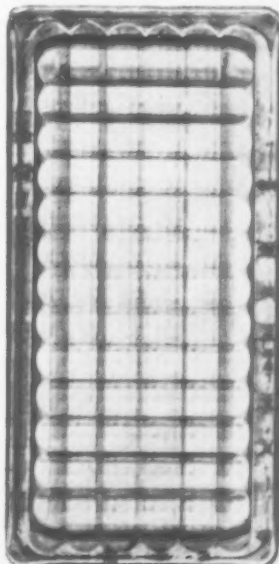
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WORLD'S LARGEST SECULAR STAINED GLASS WINDOW

The distinction—for what it is worth—of being the largest piece of secular stained glass in the world seems to be as ephemeral as that of being the tallest building in Asia, but all claims from European windows will be stilled for some time by the main concourse window, I, of the American Airlines Terminal at Idlewild, 317 feet long and 23 feet high. The inspiration to commission such a window came to Robert Jacobs of the architects, Kahn and Jacobs, from a sight of the large scale works of art in the new University City in Mexico. The designer of the

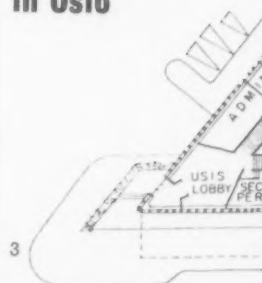
glass, Robert Sowers, trained in London, at the Central School of Arts and Crafts, so that Europe can claim some credit for this enormous project, whose iconography is (of course) suggestive of 'power and movement, symbolic of the jet age,' but of more interest than the content is the technical side, which employs a mixture of traditional techniques (lead framing to the individual pieces) with modern materials (neoprene steady-pads on the main frames, thiokol caulking) while back-lighting is employed to ensure that the glass can be read from both sides, day and night.

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**Saarinen's
other Embassy**

With handing-over date now scheduled for the beginning of July, the hour when British, and world, critics will have to start making up their minds about Eero Saarinen's new US embassy building in London, is approaching fast. Whatever conclusions they finally reach about that

U.S. Embassy in Oslo



3

particular work of diplomatic formalism, they can begin to see their apparatus criticism on the immediate predecessor, the US Embassy in Oslo, 2, also the work of Saarinen and closely related to the design in its use of a hit-and-run formula for the framing of the (regular) fenestration. Although the photograph does not show the building stands on a triangle

4



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THE ARCHITECTURAL REVIEW

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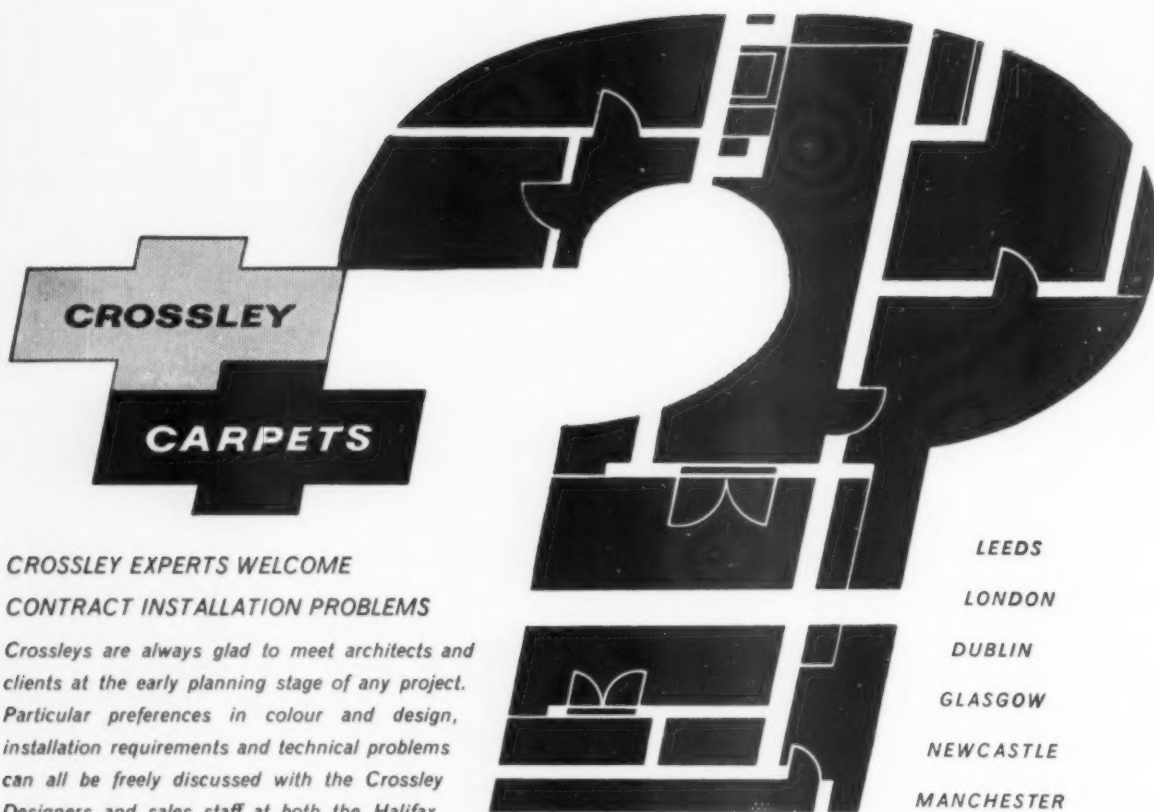
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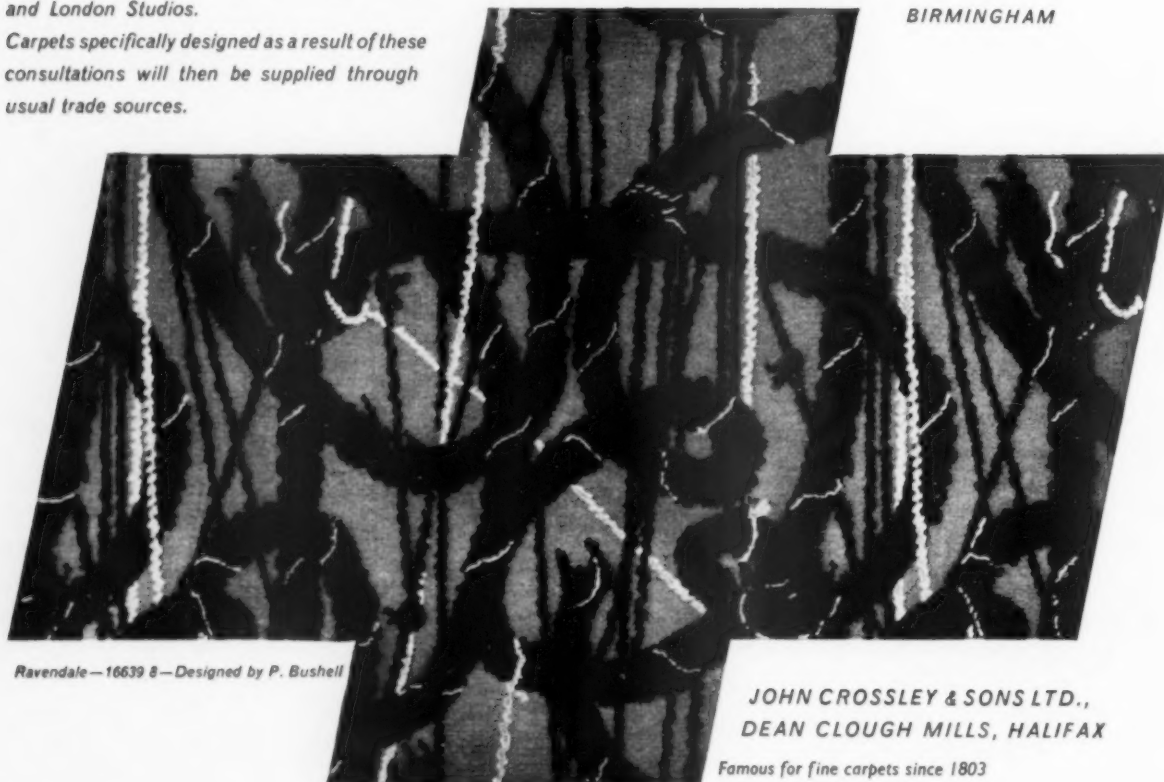


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Ravendale—16639 8—Designed by P. Bushell

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1

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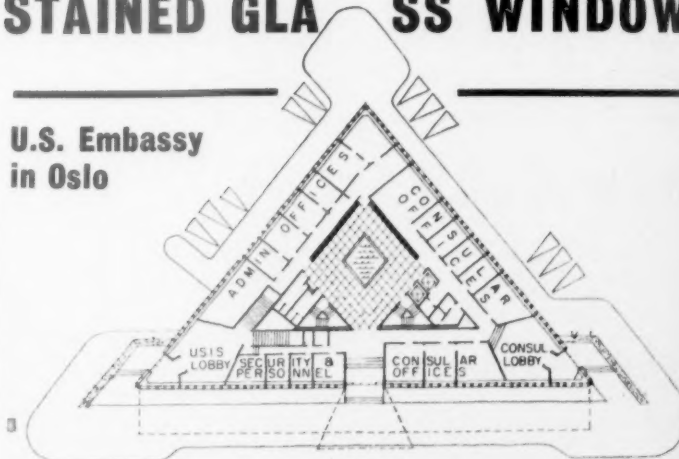
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**Saarinen's
other Embassy**



293

U.S. Embassy in Oslo



particular work of diplomatic formalism, they can begin to sharpen their apparatus criticus on its immediate predecessor, the US embassy in Oslo, 2, also the work of Saarinen, and closely related to the London design in its use of a hit-and-miss formula for the framing of the (entirely regular) fenestration. Although the photograph does not show it, the building stands on a triangular site

with a polygonal courtyard in the centre, 3 and 4, but the most noteworthy contrast with the rectangular London version lies in the surfacing material. Using an inherently rich aggregate, emerald pearl granite, for the precast façade units, which are then polished and ground to a very high finish, Saarinen here produces an effect that looks as if it will always be more opulent than the Portland stone and matt gold trim of the London version—unless the weathering of the Portland stone to its traditional black and white is more dramatic than anyone yet anticipates.

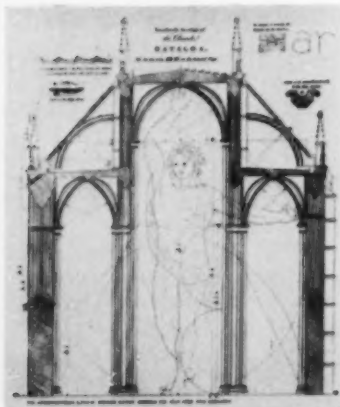


UNITÉ TYPE BERLIN

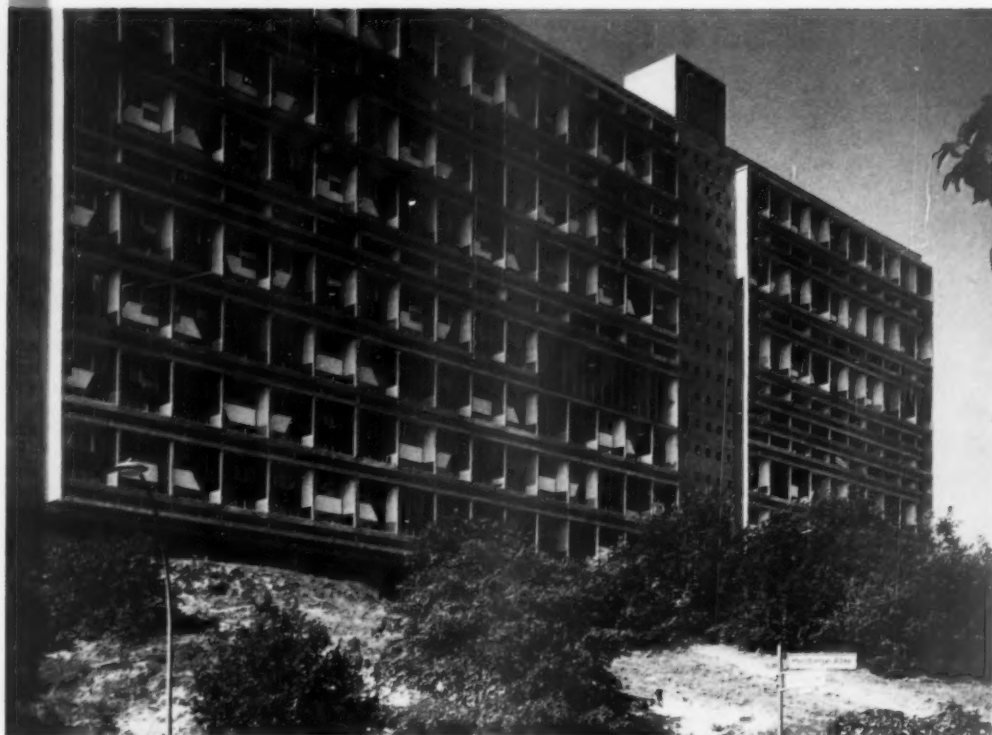
Berlin Interbau, the great international architectural exhibition of 1957, has already faded into history; already we are forgetting that it has altered the face of a sizeable district of the city—and altered it permanently.

ACKNOWLEDGMENTS

COVER, Toomey Arphot. WORLD, pages 293-296: 2, 5-8, G. E. Kidder Smith; 3, 4, Architectural Record; 9-12, Foto Vasari Roma; 13-17, Byggekunst; 18, Arts and Architecture. MARGINALIA, pages 297-299: 5, Galwey Arphot; 6, 7, Western Morning News. FRONTISPICE, page 300: G. E. Kidder Smith. HOUSING, BETHNAL GREEN, LONDON, pages 304-312: Intro, AR aerial photography unit; remainder, Denys Lasdun. HAERING AT GARKAU, pages 313-318: Jurgen Joedicke. HOUSE AT ARKLEY, HERTFORDSHIRE, pages 319-321: Galwey Arphot. ADDITIONS TO A HOUSE IN BAYSWATER, pages 322-324: Toomey Arphot. INTERIOR DESIGN, pages 333-337: Henk Snoek. DESIGN REVIEW, page 338: 1, US Information Service. SOUTH BARRICAN, pages 337-343: Kenneth Browne. THE GREENWICH LAYOUT, pages 344-346: Titlepiece, Ministry of Works; 6-8, Toomey Arphot. CURRENT ARCHITECTURE, pages 347-350: 1, P. W. and L. Thompson; 2-9, Galwey Arphot; 10, 11, Verner Rees, Laurence and Mitchell. MISCELLANY, pages 351-354: Exhibitions, 2, Edwin Smith, 4, James Mortimer, 5, Musée des Arts Decoratifs and Arts Council of Great Britain; 6, Arts Council of Great Britain. Counter Attack, 1, 2, Andor Gomme; 3-9, Wheeler and Sproson, 10, A. J. Cluness. SKILL, pages 355-360: Titlepiece, Toomey Arphot; 3, Galwey Arphot; 9, Norman Gold; 15, Roneo; 17, Bedford Lemere and Co.; 18, Toomey Arphot; 20, Holland and Hannen and Cubitts. THE INDUSTRY, pages 360-362: 2, GEC.



On the cover, the ghostly Apollo measuring out the proportions of the church of Batalha must be among the earliest known direct ancestors of Le Corbusier's Modulor Man, right, since he appeared in plate 5 of James Murphy's Plans, &c. of the Church of Batalha, which was completed, if not published, by 1792. Corbusian scholars will point out that the Modulor is a system of measures, not proportions, and that Modulor Man's height to the top of the head is not equally subdivided into three parts, but the use of a final component from the top of the head to the finger tips of the raised hand, is the same in both cases.



RIDGES

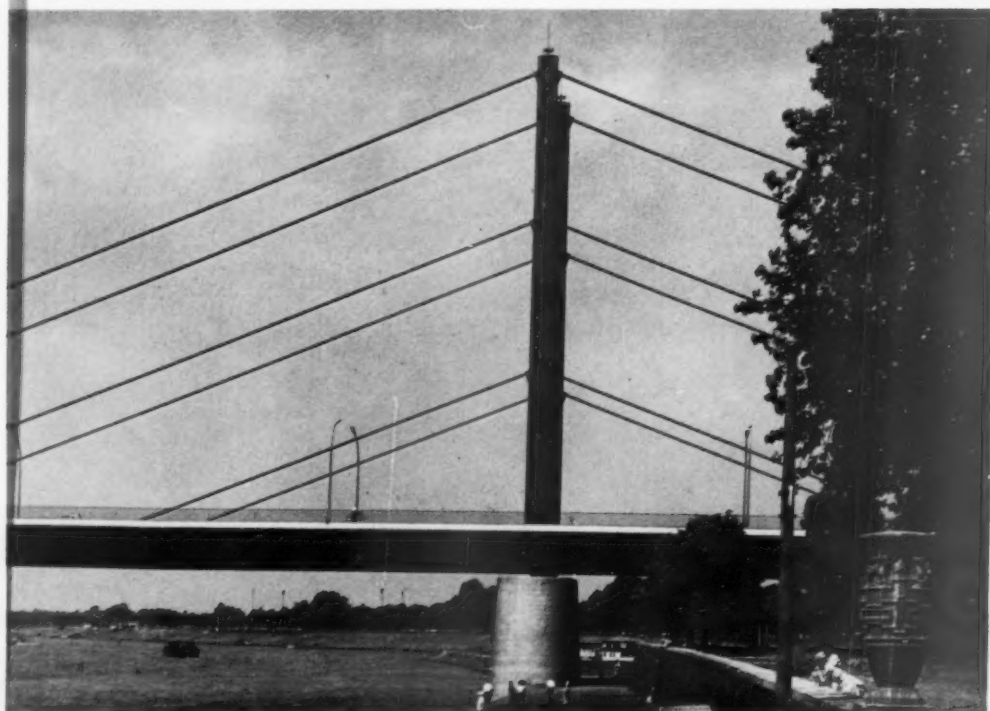
structural parts are remarkably ing to look at—but notice also minor niceties as the exact repetition of the visual intersection between the gons of the carrying cables and uprights of the lamp-posts.

a bridge like this, Germany in a position to regain that splendour that characterized engineering/architectural works early years of the century, with

the added interest of a new boldness on the engineering side—the new bridge at Cologne, for instance, will be asymmetrical, and have the cables hung from a bipod on one bank only, thus doing away with half the normal superstructure of a suspension bridge.

But Schreier, in fact, has already done away with three-quarters of the top structure of a suspension bridge in a design that thousands saw as long ago as 1958. This was the overpass-bridge to the West German Pavilion at Brussels Expo 58, which has now been permanently re-erected, 7, to

7





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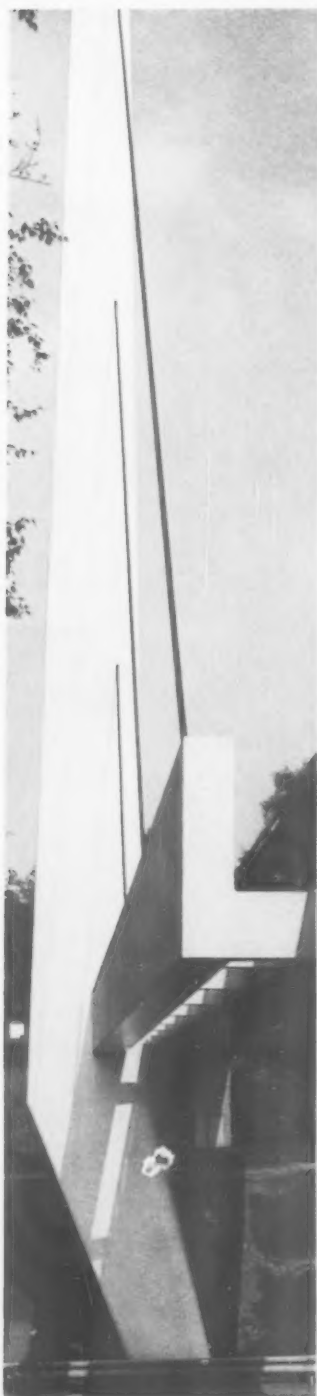


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German Bridges

span the autobahn between Duisburg and Dusseldorf, near the Zoo. Here he has achieved a completely asymmetrical bridge, with the single supporting pylon standing well away from the footway that it carries, 8. Although this is manifestly a work of technical bravura, it suggests the promise of a new freedom of siting in bridges, particularly in terrain where secure footings are hard to attain—which are nearly always terrains of greatest natural beauty as well—provided that this kind of asymmetrical layout can be maintained in works of larger scale, since the off-centre loads will present formidable problems.



PADIGLIONE AL PARCO

Prize winning Scheme for Venice Biennale

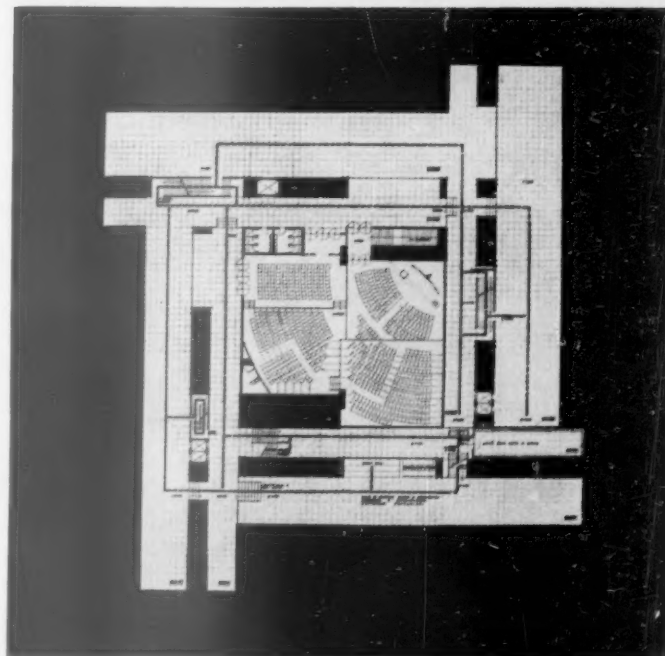
Hilda Selem, designer of the Pozzi showroom in Rome, illustrated in AR April 1960, was also one of the prize-winning team* in the competition for a new Italian pavilion in the *Parco del Biennale* in Venice. Although it seems unlikely that the design will be built in the nearer future, it is worth recording on its own merits, and as a pendant to Michael Brawne's two articles on Museums and Art Galleries which appeared in AR May and December 1959.

The winning scheme, 9, calls for two layers of galleries with a varying gap between the upper and lower layers, deep enough to accommodate a third



layer of gallery space in some areas, but a promenade deck only in others. There are three of these two-layer units of almost identical plan, grouped around three sides of a square court, 10, with a single storey unit, of similar plan on the fourth side. The plan of the complete pavilion, 11, thus acquires something like pinwheel symmetry, but the plan also reveals (a) that each gallery floor is split into a wider and a narrower unit, separated by circular-

* Lucio Passarelli and Stanislao Alessandri, engineers; Hilda, Selem, Paolo Cercato and Giorgio Volpato, architects.



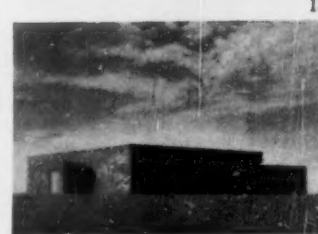
tion space or an air-gap, and (b) the concentration of four auditoria of different sizes in the central court. Not only is the resultant plan very compact for the amount of accommodation offered, but the section is of the greatest interest, 12, the two-way splitting of each gallery block providing display spaces of very varied size, section and orientation toward the light. The project also involves the land-

scaping of the area immediately around the pavilion, and part of the water garden can also be seen in 10, where a model gondola gives scale to the whole.



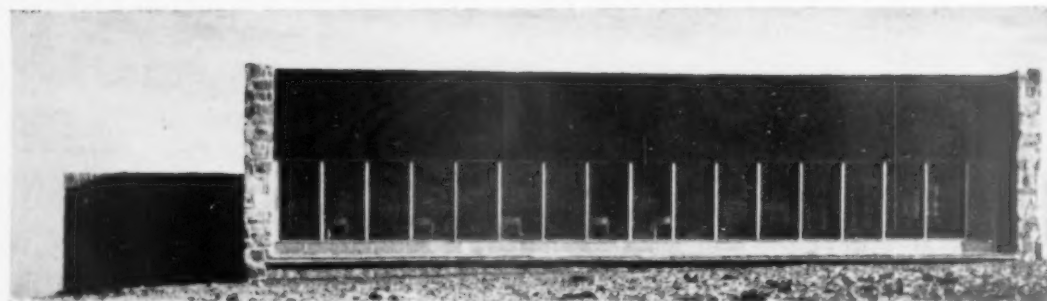
NORWEGIAN SHELTERS

One of the mystique-words of 'advanced architectural thinking' is *Shelter*, which means something different to every architect, and something different again to the general public. Practically the whole range of meaning can be seen in two recently-completed shelters in Norway. The architects' extreme is represented by the *Nordkaphallen*, 13, designed by Torbjørn Rodahl and Paul Cappelen,



to deal with what *Byggekunst* (6, 1959) calls the 'non-stop besøkstid' that sets in when the midnight sun is on view. Though this round-the-clock visiting season occurs at a time when the climate is probably most favourable, the low block-like architecture, 14, of what is, after all, only a restaurant, 15, emphasizes that the North Cape is, at other times, the most northerly and theoretically inhospitable part of mainland Europe.

The public's extreme view of shelter is exemplified by what might be called a glorified bus-shelter with tourist information office in the centre of Oslo. It might almost be called a pavilion of taste, since it was designed by Odd Brochmann, author of the well-known book on *Good and Bad*

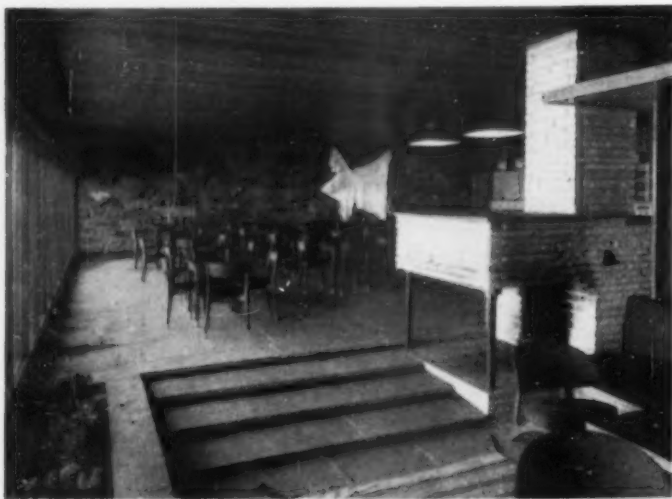
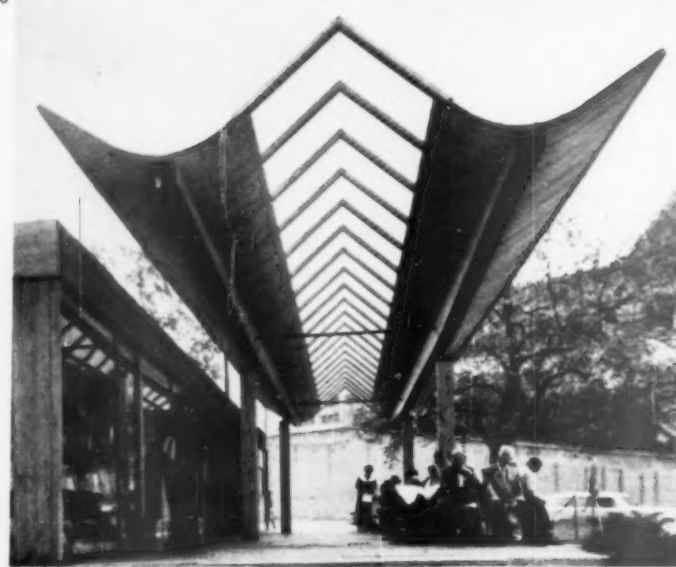


14

Norwegian Shelters

Taste, with Dag Rognlien, and the frisky form, 16, of its canopy, in glass and laminated wood, could hardly be in stronger contrast to the fortified character of the *Nordkaphallen*.

16



15

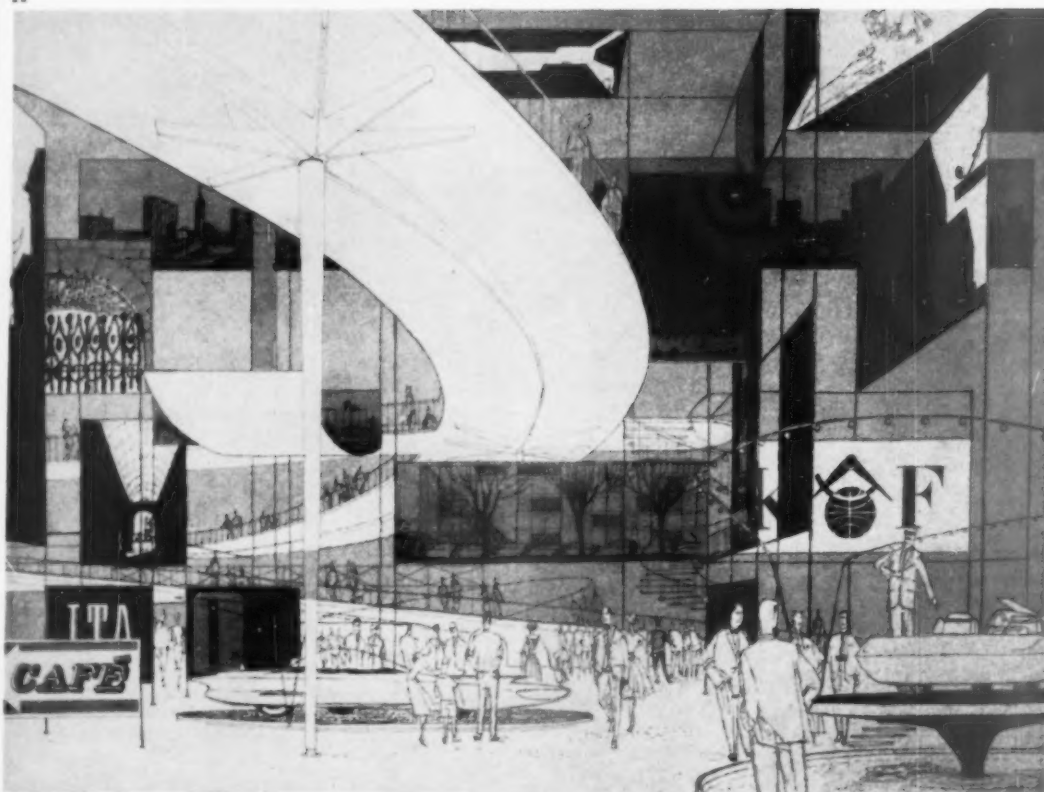
FUTURE REPETITIVE: 1962 Exhibition in Seattle

Century 21

17

Futurism, like Rock'n'roll, is buried by the critics at regular intervals and—still like Rock—always pops up again somewhere else. Every major exhibition provides an excuse for more of it, and foretastes of the future always prove to be Futurism all over again—the main interest is in seeing how the regular package of multi-level circulation, dream vehicles, oracular structures and so forth, will be styled.

One of the most promising prospects in this grand old modern tradition is offered by the previews that have been published for *Century 21*, the exhibition scheduled for 1962 in Seattle, Wash. The keynote display has been projected by Paul Thiry, and as realized in Carlos Diniz's sketches, 17, which appeared in *Artis & Architecture*, promises an extremely gay and elegant West Coast version of the Futurist Theme. The circular high-level walkway runs concentrically around a geodesic dome (almost as obligatory nowadays as an elevated walkway) in the centre of the *Coliseum* building which is to house the exhibit and the *Coliseum* itself will consist chiefly of a square roof of 360 feet clear span supported from a central ridge beam carried on tripods at the end.



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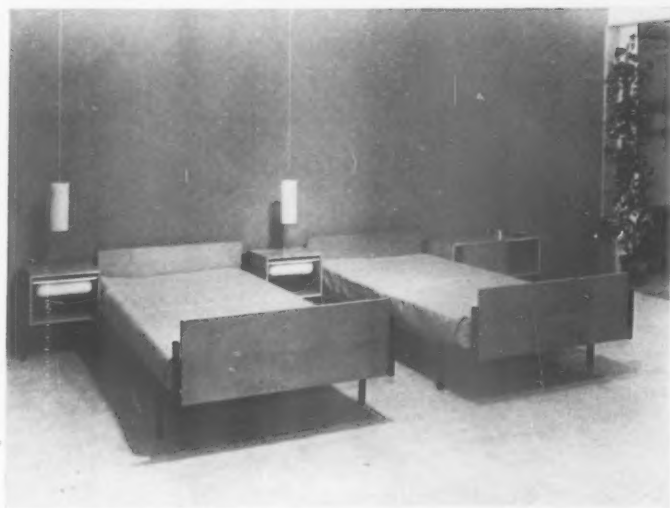
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1



2

1, the Italian room at the Heal's 150th anniversary exhibition, designed by students under the direction of Gio Ponti.

2, the German bedroom.

3, the beds in the British room, designed by students at the Central School of Arts and Crafts.

4, the Norwegian room, designed under the direction of Arne Korsmo.



3



4

views and reviews

MARGINALIA

FUTURE FURNITURE TODAY

No so many months after the death of the man who raised the firm to its present position of world eminence—Sir Ambrose Heal (AR *Marginalia*, January, 1960)—comes the 150th anniversary of the firm of Heal's itself,

a group headed by Arne Korsmo (architect of some remarkable houses illustrated in AR Sept., 1957). Here, alone in the show was a room conceived as a whole, with built-in furniture on a large scale, rather than an exhibition gallery of cabinet-maker's showpieces, the few items of movable furniture being very spare and simple.

The exhibition remains open until May 24, and by providing a small cross-section of future European furniture design, gives a useful warming-up run for those whose initial apparatus will later be exercised to the full by the Milan Triennale, and some substitute for those who will not be able to visit the Triennale this year. For these latter, however, the AR proposes to make a full report on the Triennale later in the summer.



5

5, the Old Star bar in the vaults of the crypt under the City Architect's offices in Coventry.

founded in Rathbone Place, within a quarter of a mile of the present premises, by John Harris Heal. The occasion was marked in the store by an exhibition of furniture, which is hardly surprising, but this was not set up as a retrospective of the firm's output over the last century and a half. Instead, groups of students from seven countries were invited to design and furnish complete rooms.

The results, together with a room designed inside the Heal's organization, were of varying quality, but all were interesting. The Italian room, 1, designed by a group under the general direction of Gio Ponti, was rich and visibly conscious of the recent history of style. The German bedroom, 2, was crisp and light, without that clinical deadness that German design still produces when trying to be elegant (on this occasion it was the Swiss who achieved this particular effect). The British bedroom, 3, designed by students at the Central School of Arts and Crafts, clearly sets out to make a similar sort of impression, but tended to lose it in fussy or untidy details, such as the straps carrying the cushions on the bedheads.

Although the Swedes and the Finns made their usual elegant contributions, the main interest from Scandinavia was the Norwegian room, 4, intended for a teenage boy, and designed by

ANCIENT FOUNDATIONS

Alongside the underground parts of the City Architect's offices in Coventry, illustrated on pp. 345-346 of this issue, lies a substantially-built crypt with unusually deep rib-work on its vaults, 5, thought to be the surviving subterranean parts of a fourteenth-century merchant house. The work came to light during building operations on an adjoining site some five years ago, and its present function in the operation of the City Architect's and Planners' Department can be appreciated from the illustration. This function is not, in spirit, a break with its past history, since it provided cellars for the Old Star Inn which was destroyed by bombing during the war, and in any case it is an excellent example of the right way to deal with unexpected ancient monuments. Below ground these tend to be even more embarrassing than above, because they get in the way of developers' piling and services, and they tend to be ruthlessly rooted out—as with the Mithras Temple in the city of London. If their preservation is secured, they are either kept, resentfully and in quarantine, so to speak, empty and unvisited, or they are used as dumps for unwanted files that finally pile up to the ceiling, obscure the architecture and encourage dry-rot.

Here, as an occasional extension of the socially usable floor-space, the Old



6, Jacobean houses in Looe Street, Plymouth. The house on the far corner of the side street has now been reconstructed, 7.

Star cellar will be visited by more than just archaeologists and building inspectors, and saved from the ultimate fate of becoming a museum-piece without a museum.

PLYMOUTH BARBICAN

In AR, April 1957, Gordon Cullen drew attention to the threatened 'municipalization' of the Barbican, Plymouth's close-knit and unique area of townscape overlooking Sutton Harbour, and made proposals for the 'making-good' of the area by sensitive reconstruction on some sites, sensitive rehabilitation of buildings on others. While there is little sign yet of the former, the Plymouth Barbican Association has made some headway with the latter, owns long leases on some fifteen properties in the old part of the city, and has begun to overhaul the buildings involved. Near the top of Looe Street, 6, it has recently completed the re-roofing and general making-good of the Jacobean house seen in 7, with its unusual fenestration which should be appreciated by the new occupiers, a firm of architects. The house in its original condition can be seen just above the side-turning off Looe Street in 1. The association also owns the building at the extreme left in 1, and is negotiating with the Historic Buildings Council for a grant to carry out a rescue operation on the next two houses. This work costs money, and the association has now spent most of the original £5,000 (raised by its appeal fund) in purchasing the properties it now owns, in spite of grants from the Historic Buildings Council. However, it has a rent-roll of some £1,000 and is raising mortgages on property as soon as it is restored, but even so it has a long, slow job ahead of it, and deserves all the help it can be given.



INTELLIGENCE

The tenth International Design Congress at Aspen, Colorado, will be held between the 19th and 25th of June this year—that is, a month after the 'Asian Aspen' in Tokyo. However, the theme at Aspen will be considerably less grandiose, and therefore probably more workmanlike—The Corporation and the Designer: an inquiry into the opportunities and limits of action for innovators in the Twentieth Century Technological Society.

MIT have announced a unique summer course to be held this July—*Theory and Criticism in Architecture and Town Planning*, for teachers, architects, planners and historians and critics. Speakers should include Pietro Belluschi, Gyorgy Kepes, John Burckard (critic), Robert Wood (Political theorist), Kevin Lynch (planner) and Lawrence B. Anderson (educator). Further information from the executive officer, Architecture, Room 7-346, MIT, Cambridge, Mass.

OBITUARY

ADRIANO OLIVETTI

The cause of modern architecture, and of good design generally, lost one of its most remarkable supporters in the recent death of Adriano Olivetti, at the age of 58. Olivetti's products, mostly typewriters and office-machines, were the most solid achievements of the post-war revival in Italian Design, and the most substantial justification of the wave of enthusiasm for all things Italian that swept the West in the 'Espresso Era.' Their creation established Marcello Nizzoli as one of the great form-givers of the Nineteen-Fifties, along with Charles Eames, Mies van der Rohe, Le Corbusier and a handful of others.

But this was not just a styling job—Olivetti's approach to industrial production and product design was total. He was the father of modern publicity and public relations in Italy (he was the first to employ the talents of Leonardo Sinigaglia in this field, even before the War); his factory-town at Ivrea is a model for the world, first in its humanitarian attitude to the workers employed there, secondly in the impressive roster of architects who designed its buildings, particularly Figini and Pollini, Eduardo Vittoria and Ignazio Gardella. All over the world, Olivetti offices and showrooms have employed distinguished modern architects as interior decorators, or even to design complete buildings—in Milan, Bernasconi, Fiocchi and Nizzoli; in New York, BBPR, and so forth.

In addition, he was concerned with the world of ideas—architectural ideas, in the support of publications such as the magazines *l'Architettura* and *Zodiac* more general aesthetic ideas in *Sele/Arte*, and political ideas through the magazine *Comunità*. In the long run, history may judge his politics to have been as remarkable as his products—he was Europe's progressive capitalist *par excellence*, animated by a high sense of moral purpose and social responsibility, who strove toward the realization of his ideals not only by founding his own political party, *Comunità*, which was a limited success, but also by doing in fact what everyone else was merely discussing in theory—taking industry to the south, to Naples, as a pilot step towards the recovery of the *Mezzogiorno*. Readers who wish to remind themselves of the full extent of his contributions to post-war culture should re-read Georgina Masson's article in AR, June 1957.

CORRESPONDENCE

1960 SERIES

To the Editors,

SIRS,—At last someone has stated the facts of life about architecture in the 1960's. Dr. Banham's collection of papers in the March REVIEW is a salutary dose of clear thinking, leading to an obvious and, to many people, unpalatable conclusion.

The fragmentation of what used to be called Architecture into a number

of specialized compartments has parallels in Science. In all fields the break-up has been for the same reason—the body of knowledge has grown too quickly and too enormously in bulk for the individual mind to encompass. Architecture has been the last discipline to fragment in this way because of the slowness in developing and absorbing new ideas in the building industry—Buckminster Fuller puts the time-lag at around 40 years.

Because we as architects have only just now started to face up to this process of break-up, we can be aware of the mistakes made by our less fortunate colleagues in the fields of science and technology. In these fields the fragmentation process has reached such a pitch that the various specialist groups generally have the greatest difficulty in communicating with each other. This raises real obstacles to the advancement of knowledge, since the work of different specialist groups often overlaps, and not only is similar work duplicated, but the mutual stimulus of one group on another cannot take place.

This situation is and has been acknowledged by science for some time, and efforts have been made to do something about it notably in the newer fields such as cybernetics. As described by Norbert Wiener, cybernetics arose from a series of dinner-table discussions at Harvard which were designed specifically to get people of different specialties talking together, so that the borderline or unmapped areas of science could be communally explored. The task was very difficult because those involved had to establish a new and communal language before they could even start to exchange ideas. We need not, if we learn the lessons of science properly, get ourselves into this situation. We must, however, before we are overwhelmed by the avalanche, decide what we think the course of our activity should be in these changed circumstances.

A first requirement must be that we should be able to communicate, not only with other groups, but also among ourselves. Semantically we are, as a group, grossly naive. We do not even agree on the meaning of our root term, architecture, let alone the more sophisticated ideas in language and meaning, which have become part of the philosophical content of other disciplines. This, then, becomes the basic problem and need for us. In the next decade we must be able to communicate as a group, so that we can accept the increasing impetus of specialization and all its advantages, while retaining an overall group identity and grasp of the total functional situation.

Already there are signs, on a very small scale that we as a group are becoming aware of the need to think of communication as a subject in its own right. The BASA issue in the AJ for March 4, 1960, calling for training in writing and speaking, the fact that we had a lecture by Arch-communicator Charles Eames, are both indications of a new attitude towards the subject. Perhaps we can hope for more interest in the work of Charles Morris and Von Neumann in the future.

Communication of ideas is a vital part of our group function, and as such must be pushed ahead by those with enthusiasm and ability for the good



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views and reviews

of us all, and for the survival of architecture (in the semantically undefined sense). The RIBA exists, the schools exist, various research groups exist, the Architectural Press exists; surely some synthesis of ideas among these organizations can lead to a redefinition of our terms and our place in society.

Yours, etc.,

PETER COWAN.

St. John's Wood,
London, N.W.8.

SANTORIN

To the Editors.

SIRS.—The article on Santorin, by Michael Santiago, in your March issue which was illustrated by photographs supplied by myself, contains some inaccuracies and some unjustifiable conclusions to which I would like to draw your attention.

The form of the houses was determined by the necessity to create in fairly large quantities cheap dwellings which could be simply and speedily erected by the comparatively unskilled labour available, on an island which has no natural building materials—neither clay, stone, nor timber—and no port facilities. Thus this is no consciously chosen variant of the local vernacular, as suggested by Mr. Santiago, but a highly rational solution to an urgent problem, and the fact that the result so closely approximates to that vernacular merely reaffirms the validity of the functional tradition.

Mr. Santiago is further mistaken in suggesting that the layout is 'borough engineer style'; in fact, the variety of groupings of these simple house types, together with the schools, community centres and other basic public buildings produce most imaginative layouts and interesting spaces, which, unfortunately, cannot be seen from the photographs, as these were taken at an early stage of the reconstruction.

Regrettably, but perhaps inevitably, the population of Santorin is not growing but still rapidly declining.

In conclusion, I should like to join with Mr. Santiago in welcoming this development, although it is a pity that his welcome was not more positive for what is, after all, Greece's first contribution to modern architecture.

Yours, etc.,

S. M. NEUFELD.

London, W.1.

BOOK REVIEWS

SPECTACULAR GOTHIC

GOTHIC CATHEDRALS. By Marcel Aubert in collaboration with Simone Goubet. Published by Ward & Kaye. £5.

This is undoubtedly up to date the best book on its subject in English. It is not a commercial picture-book catering for the nouveau-illiterates. It has a text consisting of a long historical introduction and longer or shorter descriptive notes on the individual cathedrals. The text is written with all M. Aubert's elegance and warmth of feeling, the notes are not arranged alphabetically or topograph-

ically but historically so that they also contribute to the picture of the development of Gothic architecture in France. It is a spectacular development, and the illustrations are spectacular and at the same time documentarily reliable enough to confirm it. There are 460 of them and in addition seventeen plans, seventeen sections and seventeen bay elevations of cathedrals and a map.

The short notes on the illustrations were provided by Simone Goubet, and they contain some very rum dating (the Ste. Modeste of Chartres 'before 1260,' the figures inside the west front of Reims '1245-1257,' the Death of the Virgin at Strasburg '1250-55,' the west front of Chartres 'mid-thirteenth century'). In M. Aubert's arrangement the only puzzling thing is that Sens is not placed at the very beginning of the Early Gothic group, but at that of the High Gothic.

The illustrations have captions in French which will come as a surprise to those who are not aware of the new custom of manufacturing books in one country for sale in several. What is more trying is that the illustrations are spread in wads through the text, an irritating arrangement which the picture-books have abandoned. The result is that the text does not refer to the illustrations and that they have no dates in the captions. One has to go at all stages from the text to a group of pictures not easily found and then to the notes on them at the back of the book. Only after doing so does the layman become aware of the fine historical sequences in the plates of window tracery, of foliage, of angels in voussours, etc.

The translation is excellent as far as literary qualities go but breaks down time and again on technical matters. What reader will understand that the 'main arches' mean the arcade, that the 'labyrinthine design' in the paving of Reims means an actual labyrinth laid out in the paving, that the ribs of a vault 'act as a permanent double soffit of stone on which the vaults are erected,' or that Laon has 'two square towers with a high octagonal stage with bell-towers.' This sort of thing is a great pity; for the French is precise, and the lay reader (and for that matter the architect reader) needs precision to keep up with M. Aubert's exposition.

Nikolaus Pevsner

SPACES FOR PLAY

PLAYGROUNDS AND RECREATION SPACES. Introduction by Alfred Ledermann and Alfred Truchsel. Translated by E. Priefert. Architectural Press, 63s.

Much has been said and written about the problems of juvenile delinquency and teen-age behaviour and it is widely recognized that inadequate provision for leisure activities is a major contributory factor. But the child is father of the adolescent as well as the man, and it is astonishing that this excellent book is the first in this country to deal seriously with children's play, not just in terms of swings and slides but as an outlet for fantasy and adventure and as an introduction to community life.

Every aspect of the subject is dealt with, from town-planning to sandpits and from toddlers' to parents' committees, although the authors have deliberately refrained from giving technical details on sizes and con-

struction methods, believing this field to have been already covered. One of the authors is an educationist, the other an architect, so that the book is well balanced. They write from long experience and have chosen attractive photographs and plans from many countries to illustrate their arguments. These combine to make the book a richly worth-while investment for every local authority.

Some of the playgrounds illustrated, particularly the American ones, may seem lavish by our standards, but the basic ideas are simple enough and could be carried out less elaborately, with simpler materials.

The question of supervision is more difficult. In Scandinavia and Switzerland, most playgrounds have a park-aunt or play-leader or some adult person present for at least a part of the day, thereby increasing the range of play enormously. In the Tivoli Gardens in Copenhagen, for example, social science students take it in turns to spend two hours or so in the children's play area. In this country, apart from the relatively small number of adventure playgrounds, such supervisors as there are appear, for the most part, to have been recruited from the ranks of cloakroom attendants and are quite incapable of helping children to develop their personalities through imaginative play. It is considerations such as these, rather than those of expense, which put a few of the ideas in this book outside our reach, but only, it is to be hoped, for the moment.

Susan Jellicoe

BUILDING LOGIC

PHILOSOPHY OF STRUCTURES. By Eduardo Torroja, translated by J. J. Polivka and Milos Polivka. Publishers, Cambridge University Press, 94s.

'There is' says Torroja 'the case of the engineer who based his reasoning on the following argument: "I shall take advantage of the happy coincidence that I must design a bridge and that prestressed concrete is fashionable, and I will make a prestressed concrete bridge." 'The bulk of this book is devoted to establishing sounder reasons than this on which to base design. It does so by presenting in the most general way, on the one hand, the potentials of a number of materials and, on the other, the structural demands of typical building forms. Despite a dubious translation, this is a lucid and often helpful analysis.

It is difficult to know whether or not Torroja intended his work to be read by architects. They will certainly look at the illustrations; they may even read the text. Its serious shortcomings in terms of architecture are that, unlike the late Felix Samuely's masterly lectures on the same theme, the choice of the rational structure is posed too often as a problem capable of being isolated and solved in terms of structural logic alone. This may to some extent be due to the fact that Torroja's greatest interest has been in large, functionally simple forms like bridges, grandstands or market halls. In this field his contribution has been most significant and it is, in fact, surprising that in comparison with Nervi or Candela his name is so little known in this country.

But in other buildings the answer is often bedevilled by considerations of

daylighting, of space for services, of sound control, of the necessary relation to cladding, partitioning and the economics of rentable space. The structural form which is rational in 'pure' terms may become completely irrational when these secondary aspects are taken into account. As Torroja puts it in his discussion of engineering calculations, it is not the accuracy of the arithmetic which is vital but the correctness of the hypothesis. In architectural terms at least, his book does not always take for granted that the hypothesis on which the initial choice has to be based may be complex—in some cases even perverse—and that these may seriously reduce the validity of the structural assumptions.

Unlike many engineers, Torroja is keenly aware of the visual impact of his work. This may indeed be partly the secret of his success. The book is thus rightly and bravely full of judgments on appearance. It would be idle to pretend that one can always agree with these. Torroja, for example, finds steel a visually unsympathetic material. This is obviously a personal feeling and not necessarily a view shared by other Spanish designers. The architect of the brilliant Spanish Pavilion at Brussels last year would evidently disagree. Concrete is Torroja's great and natural medium. He knows and, probably, loves it. He is, in any case, also the director of Madrid's Technical Institute of Construction and Concrete. His shrewdest remark on reinforced concrete, however, is that there is no such thing as visual honesty in the material. The real strength is in the steel bars; inevitably this skeleton can never be exposed. It is good to hear such shocking ruthlessness.

Michael Drawne

GUIDE TO GAUDÍ

GAUDÍ. Published by Editorial R.M., Barcelona.

That the moment which produced Chandigarh has also produced a reassessment of Gaudí is understandable. What is less easily understood is that Le Corbusier himself, in a foreword to the most recent book on Gaudí, does not defend him as one daring poet in three dimensions to another, but presents himself as the architect of the 'soap boxes' (his word) of Garches and Poissy. Why should he pretend to be what he was thirty years ago? One can only assume that once again his ambition of proving to have been the first in everything must be the cause of his strange foreword. He says that he discovered Gaudí for himself as early as 1928. What he praises in Gaudí is interesting enough: 'his force, his faith and his technical capacity.'

The book consists of 57 plates, some in colour, most in black and white. They are exciting all right, though not especially new. With Professor Hitchcock's Gaudí catalogue of the Museum of Modern Art, the Italian Gaudí book in the Astra Arengaria series, the Gaudí number of the Cuadernos de Arquitectura, and the earlier books, there does not seem to be a pressing need for the new volume. Still, the more people are introduced to Gaudí's fantastical and fertile genius, the better.

N.P.



The need to segregate different kinds of traffic and the value of the upper level pedestrian deck are at last being recognized in this country; witness recent pronouncements by the Minister of Transport and the fact that a number of experiments with pedestrian decks are now being made in important planning schemes. One of these, being made by the City of London, is illustrated on pages 338-343—an experiment especially to be welcomed because the City has not hitherto shown itself a pioneer of new planning ideas. The acceptance of the principle, however, is only a first step; this kind of multi-level planning depends a great deal on being

executed with architectural sensibility, and particularly on the design of all the incidental detail, and of the street furniture. It is in such details that British design most often fails. The photograph above of the new North Bridge at Düsseldorf, designed by Dr. F. Schreier, is a reminder of the high standard achieved in such work abroad, and especially in Germany—a standard below which the new British work should not be allowed to fall. The photograph, taken by Mr. G. E. Kidder Smith on a recent tour of Europe, shows the cycle slip-ways descending in two sweeping curves at one end of the bridge. The bridge is further illustrated in *World*, page 293.

Michael Rix

INDUSTRIAL ARCHAEOLOGY

Since Britain is the country that pioneered the Industrial Revolution, it goes without saying that we can claim to have produced the first steam engine, cotton-mill, iron bridge, railway line, locomotive, metal-framed building (all, incidentally, of the eighteenth century) and railway station in the world. If these were simply of local significance they would be of sufficient importance, but here is an earth-shaking human step forward on a scale only once achieved before—and that, ten millenia ago, with the discovery of agriculture in the Middle East. So here in the Industrial Revolution is one of the few major landmarks in the million-year-old story of man's existence on the face of the earth, but since it belongs to the last three or four centuries it is easily overlooked. Many of the key monuments of that revolution still survive in these islands unregarded and neglected, the future of none of them is secure (with one honourable exception). We have allowed the destruction in the last few weeks of the oldest passenger railway in the world. We owe to foreigners our knowledge that Shrewsbury contains not only the oldest but also the first multi-storey, metal framed building ever to be erected, yet for all the interest we take in this unique survival, it might as well not be there.

The time is more than ripe, therefore, for someone to come forward and say 'These are the monuments that generations yet unborn will look back on as the symbols of their emancipation from pre-industrial poverty. It is our duty to do what we can to recognize them, to record them and, where practicable, to save them from destruction.' The first step towards making a list of such monuments and formulating a policy for their preservation was taken at a conference held in London last December. This conference was called

by the Council for British Archaeology, which concerns itself with co-ordinating the efforts of all organizations in this country that are interested to investigate and preserve the material evidence of man's past activities in these islands. At last the professional archaeologist has shown practical recognition of the fact that his province in time is not confined to pre-history and those early periods of written history where his spade, camera, distribution map, pen and imaginative interpretation of his finds can illuminate

and fill gaps in the written record, but embraces the whole span of man's existence on this planet, not least the present day.

To take one example of how little is still generally known about recent industrial history:

Britain's contribution to the rise of the Industrial Revolution is well recorded in every school text-book that deals with the emergence of mass-production in the Lancashire cotton trade and the Yorkshire woollen mills, with James Watt's transformation of the steam engine and the work of Brindley and Macadam in improving communications, and yet the contribution of Shropshire barely gets a mention. In a comparatively short stretch of the Severn Valley between Shrewsbury and Bridgnorth—barely twenty miles apart—lies the Ironbridge gorge area, which can claim to be the birthplace of the Industrial Revolution. This region is associated with such names as Abraham Darby, who built the Iron Bridge, John Wilkinson, the great ironmaster, and Thomas Telford, the father of civil engineering. It can claim the following impressive list of 'firsts': successful smelting of iron with coke, cast-iron steam engine cylinders, iron railway lines, iron bridge, canal incline, iron boat, cast-iron aqueduct, multi-storey metal-framed building, locomotive on rails. All these are eighteenth-century achievements except the last which dates to 1803.

The industrial monuments of this area are unique, and steps to guarantee their survival are urgently needed; only a policy that takes them into public guardianship will ensure their preservation. I quote only two examples: the Iron Bridge and Jones's Maltings. The bridge was erected in 1779 and is deservedly famous as an outstanding technical and engineering achievement. It has the additional claim to fame of being the first application of metal in architecture and prime ancestor of such structures as Sydney Harbour Bridge. (Incidentally it also merits high appreciation as a thing of beauty and a fine landscape feature in a striking piece of scenery.) Yet it is only since the war that any detailed study of it has appeared in print, and while the evidence for the complex method of its erection is available, no one has taken the trouble to study and publish it.

At least the Iron Bridge has been scheduled as an ancient monument for what that is worth (nothing financially for its upkeep!). Jones's Maltings, of equal importance, has not even been listed in its top category by the Ministry of Town and Country Planning. Yet there is no question that it is the oldest metal-framed building in the world: not only that, but one of the first of its kind ever to be erected. It was put up in 1797 as a flax-spinning mill and is now used as a brewer's maltings. The first hint of its existence was published by Dr. Nikolaus Pevsner nearly a quarter of a century ago, quoting a Telford pamphlet of 1801. This was taken up by the American scholar, Professor Turpin Bannister, who printed an account of the building in 1951. His researches have since been supplemented by those of Professor A. W. Skempton. This first building to be constructed, apart from its masonry walls, entirely with iron columns and beams (in order to reduce fire risk) still stands the prime ancestor of the all metal-frame building, itself the

ancestor of the modern sky-scraper. Yet for all the public interest that it has aroused, it might as well not have been discovered.

As a result of opinion's neglect the grave loss of industrial monuments since the war has gone largely unremarked. The famous Cornish pumping engines could boast six machines in steam fourteen years ago in their native county; now there is none. Throughout England the number of beam-engines in steam is falling fast. For the last twelve months the most complete traditional blast furnace in the country, the Lilleshall Company, Priors Lee, Shropshire, has been on offer to anyone who would accept and preserve it as an industrial monument. In view of the present lack of public interest, it is not surprising that no one has come forward to accept this generous offer and it is being dismantled. Modernization is wreaking havoc in traditional industrial plant. In the Potteries, for instance, the old bottle-shaped kiln will soon be a thing of the past. The day is not far distant when it will be easier to see and make sense of a Roman villa than it will be to visit and understand an old-fashioned pottery kiln.

Yet the picture is not one of unrelieved gloom. Four rays of hope have shone out in the last twelve months, all in the West Midlands. They are connected with an industrial firm, the National Trust, the British Museum and a county council. The firm in question is Allied Ironfounders who control the Coalbrookdale Company, the pioneers of modern iron production. In order to celebrate the two hundred and fiftieth anniversary of the first successful smelting of iron with coke they have excavated the site of the old furnace and laid it out as a permanent memorial to this unique step forward in the history of metallurgy. They have also established a works museum there to illustrate the remarkable varied achievement of the firm over the last two and a half centuries. At Coalbrookdale, in Queen Anne's reign, a quaker ironmaster, Abraham Darby I, purchased and reconstructed a small ruinous blast furnace and first charged it with coke (in place of the traditional charcoal) in January, 1709. To his delight the molten metal ran thinner than charcoal iron and was thus eminently suitable for the casting of bellied pots which he had recently patented. Thus at one stroke the blast furnace was released to improve the quantity, frequency and quality of production that had been seriously hampered by the use of charcoal.

His grandson, Abraham Darby III, conceived the idea in the 1770's of building an iron bridge across the Severn in this area—a single span of 100 feet involving individual casting of five tons and more for the main ribs. To this end he enlarged the old furnace and the success of his pioneer venture is proved by the fact that it is now one of the oldest surviving bridges across the Severn. The furnace in which its component parts were cast still stands, the focus of the memorial site. It incorporates iron beams on which are cast the words ABRAHAM DARBY 1777 and smaller beams with the date 1688 on them indicating the presence here of a furnace in the reign of Charles I.

In deciding to save the furnace from decay the Coalbrookdale Company was involved in shifting

thousands of tons of debris that had accumulated on the site and has also preserved a second 'vintage' furnace, the setting of a water-wheel that provided power for adjacent work-shops and the remains of a drying kiln. While clearing the site a number of finds came to light including the foundations of the pre-1709 furnace and an early heat-exchange radiator. There is space also for the display of eighteenth-century railway lines and rolling stock for it was here that the first iron rails were produced and laid in 1767. Other outdoor exhibits comprise a cast-iron fountain designed for the Great Exhibition of 1851, which was rescued from dereliction in Staffordshire, and a 'vintage' Coalbrookdale locomotive salvaged from retirement in a Leicestershire quarry. The scene is set among hanging woods and is dominated by the great retaining wall and dam of the furnace pool, a railway viaduct and a Regency warehouse block surmounted by a cast-iron clock tower.

The other three rays of hope are first that the National Trust has ventured into the field and plans to take over guardianship of two disused canals, one at Stratford-upon-Avon, the other, engineered by Brindley, the Staffordshire-Worcestershire which created the beautiful town of Stourport-on-Severn. Secondly, Staffordshire County Planning Department has appointed an archaeology officer (the first post of its kind in the country) whose task will be as much the study of industrial archaeology in the county as its more conventional prehistoric remains. Thirdly, the British Museum sponsored an excavation on the site of Longton Hall in the Potteries, in order to throw light on the intriguing history of the porcelain figures that were manufactured there for a brief period during the eighteenth century.

But the most encouraging sign of all is last December's conference, which I have already referred to. How wide an interest it aroused is shown by the variety of persons present which included geographers, economic and technical historians, archaeologists, industrialists, museum curators, local planning officials and representatives of the Ministry of Works, the Ordnance Survey and the Royal Commission on Historical Monuments. The following resolution was passed:

This conference is deeply impressed by the need for formulating a policy for recording, and for preserving where desirable, early monuments representing the industrial history of the United Kingdom. Such a policy must be based on an informed valuation of their historic, technical, architectural and educational interest. The conference therefore instructs the Research Committee of the Council for British Archaeology as a matter of urgency to find opportunities of discussing with central and local authorities, and with industrial and unofficial bodies the formulation of a policy for recording and preserving such monuments.

Clearly this is not enough. During the time that we may expect the mills of Whitehall to grind slowly and those of the Treasury to grind exceedingly small, there is the prospect that irreplaceable monuments are going to disappear. Historic industrial undertakings that need to preserve illustrations of their development should be encouraged to take action immediately. The list of industries that have no museum is woefully long: it includes coal-mining, brewing, ship-building, inland waterways, civil engineering and the building trade. Each of these has an archaeology of its own that urgently needs preserving before traditional methods and tools, characteristic monuments and type sites are lost for ever.

First and foremost comes the need to preserve the really outstanding items. Only one, as already mentioned, has any guarantee of survival. That is the Ocker Hill beam engine, which for decades has been mouldering in its derelict, windowless engine-house at Tipton, Staffs. It is the oldest surviving Boulton and Watt engine, being among the first half-dozen they made, and can claim to be the earliest steam engine in the world. Within the last twelve months the Birmingham Museum of Science and Technology has acquired it and is re-erecting it with the intention of putting it in steam again.

But what of the other key monuments of the period? It seems obvious that a Government department like the Ministry of Works or the Royal Commission on Historical Monuments should have its powers extended specifically to deal with industrial monuments. It is good news that a handbook of industrial archaeology is being prepared, and that Staffordshire has been chosen as the area for an immediate pilot survey. But in view of the magnitude of the task throughout the country of listing, recording and preserving, it would be stupid to depend on any single agency. Public opinion, learned societies, universities, government departments, amateur enthusiasts, all should play their part. Above all, industry itself should be encouraged to finance its own museum show-case and archaeological dig. For example, while any individual firm in the Five Towns would naturally object to paying for the preservation of its obsolete kilns, it is not beyond the range of possibility that in this jubilee year of Stoke-on-Trent's incorporation we might see the pottery industry financing the preservation of such a type-site as Etruria as an enduring monument to the man who showed the world the way. *Mutatis mutandis*, other British industries might discover the publicity value of preserving their distinctive monuments before it is too late.

HOUSING, BETHNAL GREEN, LONDON

Those who campaigned during the Fifties for a less diagrammatic approach to architecture and town planning were frequently met with the rebuff—justifiable in some ways but infuriating to the reforming theorist—that they had nothing built to justify their opinions. In some fields this was fairly easily remedied—the negative and Subtopian consequences of diagrammatic thinking at County Planning Office level, for instance, could be countered by cleaning up on the ground, the provision of better equipment.

But on the larger scale of town-planning theory, particularly where it collided or intermingled with the design of individual buildings, there was little to show beyond paper projects and models. For this reason, Denys Lasdun's cluster-blocks in Bethnal Green, in the East End of London, are works of architectural and historical importance, insofar as they embody one of the prime concepts of the anti-diagrammatic programme and give it successful visual form.

The 'cluster' concept will be familiar to readers of the AR from an article by Alison and Peter Smithson, 'Cluster City' which appeared in the issue for November, 1957, but the idea has a history that reaches much further back than that. In general, the change-over from the universalist, diagrammatic and neatly-codified charters of CIAM, to the pre-occupation with the solution of particular building problems within particular urban settings, was a characteristic intellectual development of the decade in which CIAM finally foundered.

More specifically, however, the idea of *clusters* and the associated concept of urban *grain* did not come from the deliberations of CIAM and Team-X, but from an independent source—from an article by Kevin Lynch on *The Form of Cities* which appeared in *The Scientific American* as long ago as April, 1954. These concepts were of immediate use in the evolution of a non-diagrammatic approach to the problem of building in cities for the following, linked, reasons:

Grain is an assessment of the actual structure of any city, the distribution of living and working facilities, communications, cultural and recreational areas. In a city with a fine grain, these different ingredients will be well stirred together in small parcels; with a broader grain they will tend to segregate in larger units, with the possible end-condition that the inhabitants may not take full advantage of their city because of the long hauls from one thing to another (e.g., a public library may stand empty in an isolated 'civic centre').

Cluster, on the other hand, is an expression of a unit of natural aggregation—Lynch spoke of finding the necessary minimum cluster that will guarantee efficient usage of the city's facilities. The later use of the term has given it the additional content of meaning a natural social unit expressed in built form (e.g., a working class street and its interrelated families in a nineteenth-century industrial town).

Both concepts are susceptible of expression in visible form: the grain of a city may be read from an air photograph or by walking its streets; it is inherent in the bricks and mortar, not in a population statistic or zoning diagram. Cluster can be expressed by new buildings that make a visual focus for a district: create an image of an integrated community.

In Lasdun's work, the search for an imagery of cluster can be

traced back as far as the infants' wing of Hallfield School (AR, September, 1955) where an attempt was made to create an environment that was, in some sense, a natural extension of the home environment, with a similar architectural grain. However, the decisive phase is in his housing work in the east end of London where the first true cluster-blocks were erected in the Uk Street (Bethnal Green) development, which was designed in 1955.

Though these present nothing like so decisive or authoritative an image as the later scheme at Claredale Street, illustrated on the following pages, they already deploy the essential methods of a true cluster block. Instead of the anonymous and diagrammatic slab or point-block, with its monolithic form existing in isolation from whatever urban grain existed on the site beforehand, the two eight-storey blocks at Uk Street are of a split-butterfly plan that creates ground-level spaces of the same urban grain as the surroundings, and allows the eye to pass through to the townscape beyond, thus visually integrating the space within the cluster assembly with that outside. Furthermore, both the circulation plan and the organisation of the facades have the same grain as the surroundings—the block is conceived in terms of maisonettes assembled into units about the size of a semi-detached house—a unit which is expressed on the exterior—and these units are assembled into tall narrow towers, so that there are no long access balconies, but only short ones of garden-path scale.

It will be noticed that this approach is the exact antithesis of the streetdeck or public corridor concept enshrined in such buildings as Le Corbusier's various *Unités*, the classic expression of the island slab. This antithesis is given stronger expression in the Claredale Street cluster-block, which is intended to be read as a type of vertical street of stairs, lifts, services and public spaces (which could be shops under a more liberal legal dispensation) flanked by two-storey, two-maisonette units of semi-det scale, whose residential grain is even more forcibly expressed on the exterior than at Uk Street.

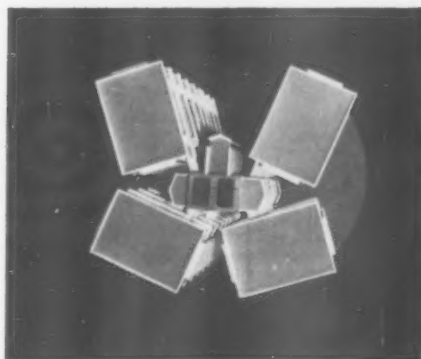
In addition, Claredale Street carries the creation of an a-formal cluster image much further. Although the plan is in fact symmetrical—a quality that gives a sense of order and apprehensible logic to the circulation at each access level—there are very few external viewpoints from which it can be read in this sense, since normally only three of the four clustering towers can be seen, and these all present different aspects to the beholder. Thus there is no sense of axuality at war with the highly characteristic urban grain of the terraced housing to the south, nor is there any formal emphasis that might prejudice the freedom of further developments within the same general grain.

In the present climate of opinion on urban renewal, this last point is clearly of some consequence. Now that opinion justifiably runs strongly against the grand and usually diagrammatic concepts that make no sense unless completed in their entirety, but are too expensive to complete any way but piecemeal, alternative methods need to be studied with care. The cluster concept offers a viable alternative on the visual side by creating tower accents without visually destroying the existing grain; on the human side it shows promise in possessing domestic scale in the component parts of these towers and maintaining something like the pre-existing sociological groupings of the streets that gave the original urban grain to the district.

HOUSING, BETHNAL GREEN, LONDON

ARCHITECTS **DENYS LASDUN AND PARTNERS** (architect in charge, John Shaw)

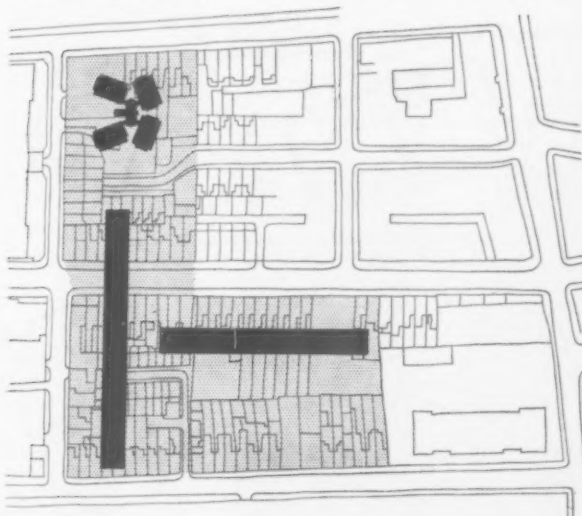
Looking down on the model of the Claredale Street cluster-block, showing the four wings planned asymmetrically round the central staircase, lift and service core.



The only area available for immediate building was in the north-east corner of the site where approximately six small bomb-damaged premises were available for demolition. In order to decant people from the existing houses on the remainder of the site, it was essential to get maximum numbers accommodated in the new cluster block. The scheme was in no way exempt from the normal financial control of local-authority housing. The experimental nature of the cluster block had to be, in a sense, subsidized by the more economical low blocks.

The Claredale Street scheme consists of the 14-storey cluster block and two six-storey blocks at right-angles to one another. Density and accommodation is as follows:—

Total area of site	4.01 acres
Number of dwellings	160
Number of rooms	560



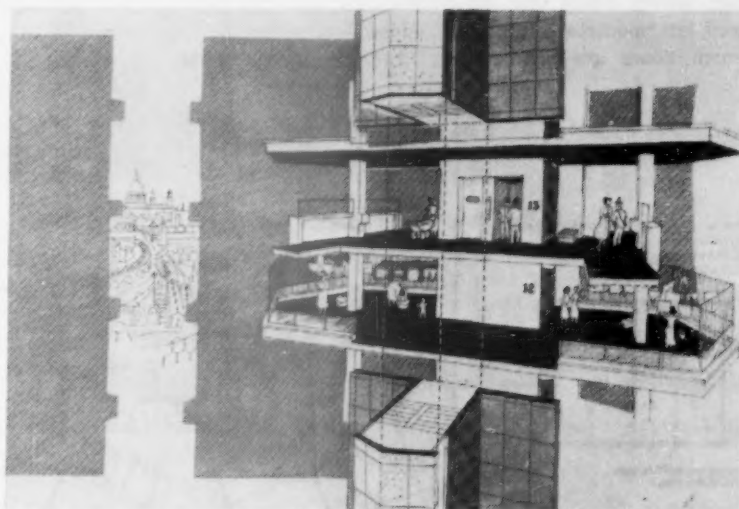
Claredale Street development: layout plan. The cluster-block and the two six-storey blocks are shown superimposed on the traditional East End housing layout that existed before.

Total number of persons (at 3.6 per dwelling) ...	576
Number of dwellings per acre ...	39.9
Number of persons per acre ...	154
Cluster 3-room maisonettes	56 (i.e. 14 per tower)
Block Bed-sitting-room flats	8 (i.e. 2 per tower)

Block B1 4-room maisonettes	54
Block B2 4-bedroom maisonettes	42
Total	160 dwellings

Four towers, each containing 14 maisonettes and two bed-sitting-room flats, are clustered round the independent central core and connected to it by bridges in such a way that the sun will reach all habitable rooms, including kitchens, during some part of the day, and that approach can be made to maisonettes from all directions. The ground floor of the four towers accommodates the heating plant, electric transformers and tenants' stores for bicycles, etc. The living-room level of the lower maisonettes being raised above the ground level means that these have privacy and are not overlooked by people entering and leaving the building.

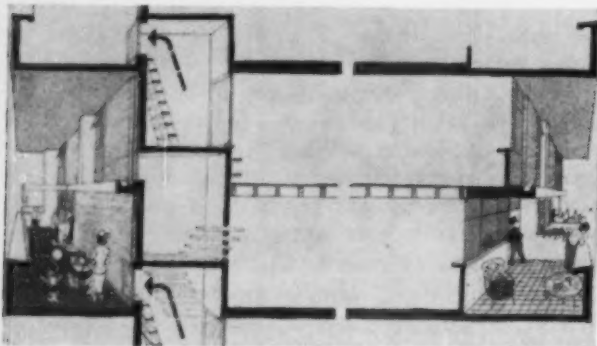
The core, containing the services of the building and the communal amenities—clothes-drying platforms, lifts, stairs and refuse-chutes, which are all noisy elements—



The cluster-block: staircase, lift and service core, showing two floors (comprising together one maisonette unit).

is an independent structure, connected to the towers by bridges. Thus, dwellings themselves remain private and quiet. In fact, 75 per cent of the tenants have direct access to their front door without passing any other dwelling. The access balconies are of minimum length and are in open and protected courts sheltered by the towers. Only entrance halls, WCs and internal stairs and bathrooms face on to access balconies. Such an arrangement allows a variety of dwellings to be planned in the towers; for example, on the fifth floor, eight bed-sitting-room flats have been accommodated. The drying-platforms in the central tower or core are at the level of the bedroom floors of the maisonettes. In this position, disturbance by ear or eye is minimized. The platforms provide the same multiplicity of function as the traditional backyard, and the idea could be further exploited in terms of small 'hanging gardens,' handicrafts space, space for keeping pets, etc., or even for small shops.

Each dwelling has central heating in the living-rooms, with one additional radiator in the hall, which provides a degree of background heating upstairs. Hot water is provided by individual electric water-heaters. A radio



Diagrammatic section through typical maisonette in the cluster-block, showing levels and means of escape; also the two balconies—access on the left, private on the right.

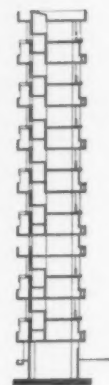
and television distribution system is installed in each dwelling. Refuse chutes are only a short distance from front doors and are approached under cover.

The structure is reinforced concrete, the elements of the towers being one cross-wall, two end gable-walls and intermediate columns to reduce floor spans. Living-room floors are concrete and bedroom floors timber,

which reduces weight and economises on foundations. Stability in the towers at right-angles to the concrete walls is achieved by arranging for all towers to act together to resist horizontal forces. The bridge slabs transmit these forces to the stair tower. A pin-joint between towers and bridges permits a limited amount of movement between towers.

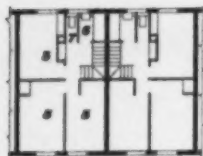
In the main structure, large precast elements have been exploited to accelerate construction, and this has required careful attention to the detailing of joints between in-situ and precast elements. The size of precast elements has been limited by weights capable of being crane-handled. Precast elements include balcony fronts, together with their facing slabs, the cruciform edge beams, front door canopies and beams supporting concrete and timber floors. The lift and stair tower is entirely of in-situ reinforced concrete.

The tower crane was located north of the stair and lift tower. The south-east and south-west stair and lift towers were first constructed simultaneously. Subsequently, while these were being partitioned and finished, the north-east and north-west towers were constructed. Scaffolding was used only on gable-walls, so that cladding units could be erected before concrete was placed. Brickwork, windows and glazing on external faces of towers, was carried out from movable cradles suspended from the concrete structure itself.

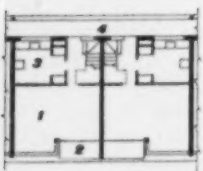


section: residential tower of cluster block

- key a.
- | | |
|----------------|-------------------|
| 1, living room | 4, access balcony |
| 2, balcony | 5, bedroom |
| 3, kitchen | 6, bathroom |
| | 7, wc |

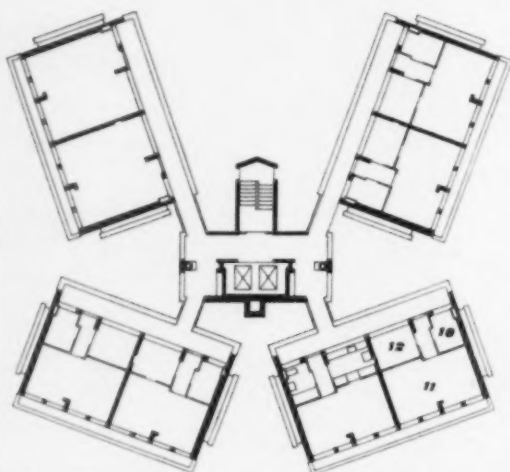


upper maisonette plan: six-storey block

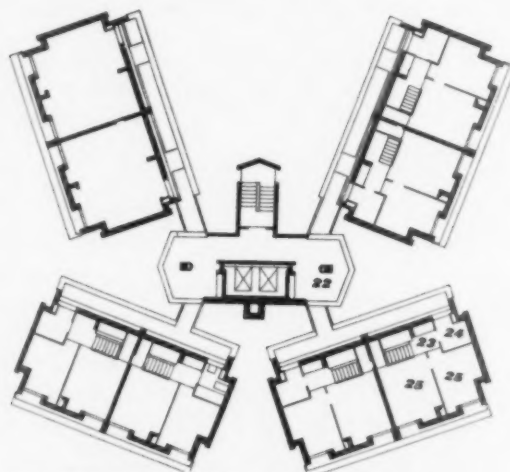


lower maisonette plan: six-storey block

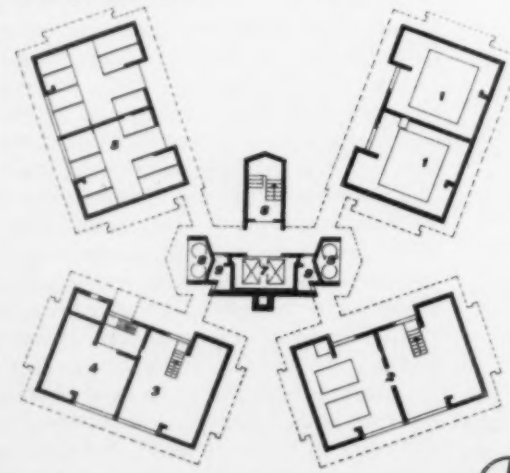
- key b.
- | | |
|-------------------------------------|-----------------------------|
| 1, fuel oil chamber | 12, dining-kitchen |
| 2, boiler room | 13, waiting space for lifts |
| 3, calorifier and water boost pumps | 14, refuse chutes |
| 4, electricity sub-station | 15, bridge |
| 5, tenants' storage rooms | 16, access balcony |
| 6, main stair | 17, hall |
| 7, lifts | 18, wc |
| 8, refuse chamber | 19, dining-kitchen |
| 9, storage and service risers | 20, private balcony |
| 10, bath and wc | 21, living room |
| 11, bed-sitting room | 22, drying platform |
| | 23, landing |
| | 24, bathroom |
| | 25, bedroom |



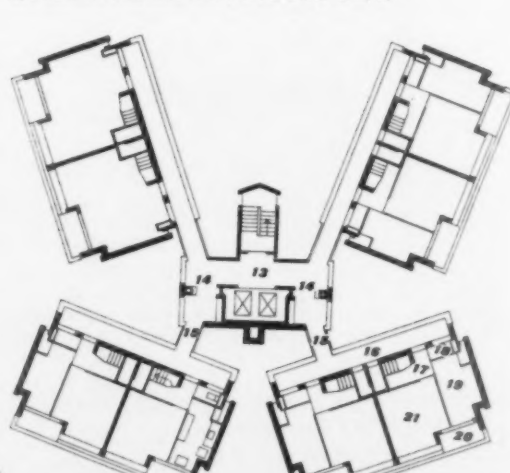
fifth floor plan of cluster block



upper maisonette level, cluster block (floors 2, 4, 7, 9, 11, 13, 15)



ground floor plan of cluster block



lower maisonette level, cluster block (floors 1, 3, 5, 8, 10, 12, 14)



HOUSING, BETHNAL GREEN, LONDON

Left, air view of the Claredale Street area, taken just before the completion of the housing illustrated on these pages. It shows the 14-storey cluster-block and the two 6-storey maisonette blocks (see layout plan on page 305) standing among the traditional small-scale Bethnal Green terrace housing, and illustrates the principles of 'grain' and 'cluster' discussed in the introductory article on page 304.

Below, the Usk Street cluster block, also in Bethnal Green, by the same architect: a prototype of the block illustrated here. It is one of two, both eight storeys high.



In the following sequence of pictures, the Claredale Street housing, Bethnal Green, is illustrated cinema-film fashion from a viewpoint that first shows how the cluster-block establishes the identity of the locality and of the individual dwelling, then moves closer to circle round the base of the block, then looks through, up and around it as well as downwards from its upper stages, and outwards so as again to identify the relationship to its locality.

Identity of locality

The cluster-block is sited so as to hover over the city. By its form it changes the structure of the locality and the mutual relationship between the two will influence future development. 1, a middle-distance view from the south. Note the similarity of grain between the new housing and the old in spite of the change in the over-all size.



Identity of locality

2, a closer view from the south-east. Note the separate identity of the three towers that are visible.

**Identity of dwelling**

The environment is made to penetrate visually into the core of the building, establishing an architectural relationship between the new and the old. Limited and recognizable groupings of dwellings assist the tenant to identify his particular home.

3, from the south, looking along Canrobert Street. The buildings in the foreground are of red brick, with painted stone lintols and slate roofs. They are likely to remain for many years. The cluster block is of natural in-situ concrete, with Portland stone facing slabs used as permanent shuttering. Bricks are black, bedded in black mortar. The tenant contributes incidental colour with his curtains. Note the cruciform subdivision of the spaces between balcony fronts, expressing 'semi-detached' maisonettes with their living-room and kitchen balcony on the lower level and two bedrooms on the upper. This is the module of the façade.



4 (facing page), from the west, looking between the two 6-storey blocks, whose cornices correspond with the fifth floor of the clus-



4

ter - block containing small flats instead of maisonettes, two to each tower.

5, from the north-west. Note the informal relationship of the towers. Within the west aperture can be seen the bridge connections, with glazed windscreens starting at the sixth floor. At this level and above there is alternative means of escape within each dwelling, and the separate heating circuit necessary in high buildings.

The base

6, looking west at the 6-storey blocks, showing the base of two of the cluster-towers. In the latter, the heating-chamber, fuel storage, bicycle - stores and sub-station are placed below the first balcony. Note the pointed base to the gable wall, indicating an entry through the south aperture to the stair and lift tower. This is the antithesis of the pilotis concept, in which people move through a horizontal instead of a vertical aperture. The wide joints in the Portland stone cladding of the gable wall over-ride misalignment of units on large panels; a narrow joint is used on small horizontal cladding units.

7, the south aperture between the south-east and south-west towers.



5



6



7

8, 9

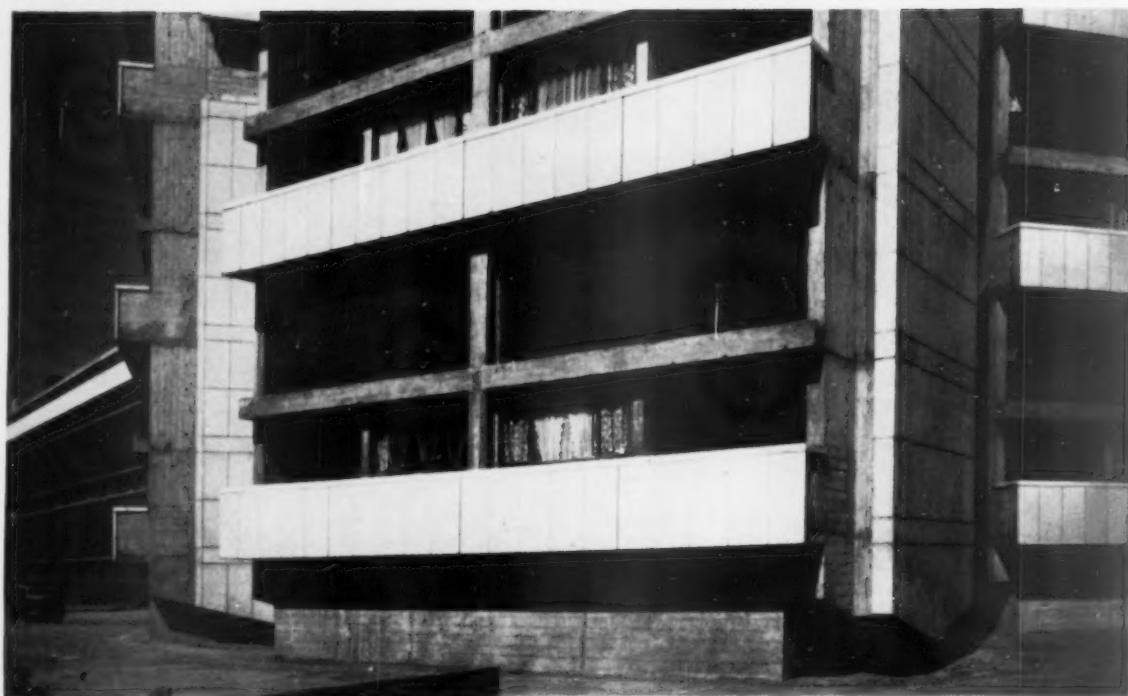
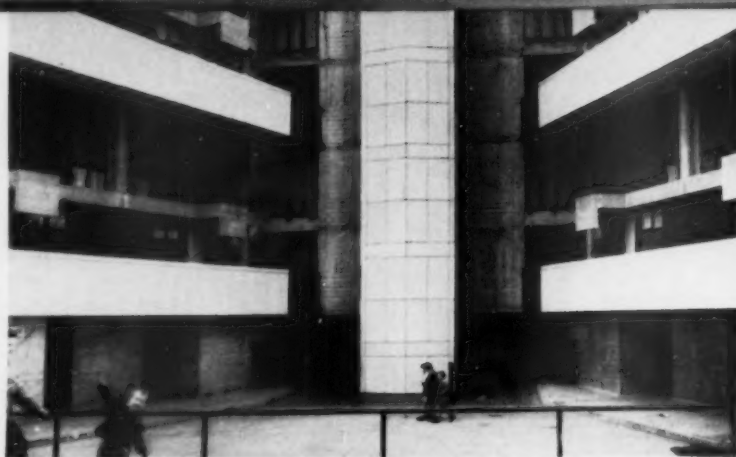
The base

8, the approach from the north, looking towards the lift tower. The canopies over the front doors emphasize the 'semi-detached' character and are pre-cast in one piece with the edge-beam.

9, close-up, looking towards the aperture between two towers. Note the movement of people through the vertical gap; also the privacy of the first balcony, 7ft. off the ground.

10, foot of the south-east tower. This and 9 show the maisonette module, consisting of half the cruciform sub-division. Balcony-front units consist of five precast Portland stone panels with wide joint between. The heavy overhangs prevent vertical views and vertigo from all windows, and give protection from rain and wind at higher levels. Similarly with the deep recession of the private balconies.

11, foot of one of the towers. The texture of the in-situ walls is obtained by using panels of 6in. sawn boarding as shuttering. Granite as shuttering.

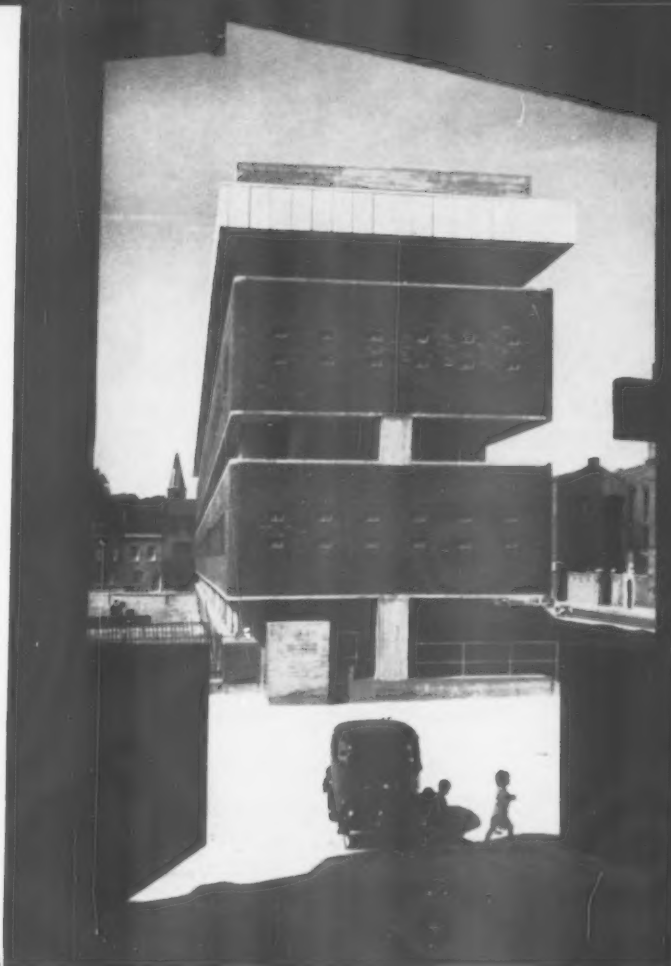


10



11

12



setts form a catchment area at the base of the gable walls so that storm water is collected at these points on all towers.

Looking through . . .

12. looking from the west aperture to the end of the 6-storey block, containing staircase and refuse chute. Note the closely framed views which allow the immediate locality to be apprehended from within the cluster-block.

13. the south-west tower, showing the bridge connection to the central tower and the drying platform at an upper level.

. . . and up

14. looking upwards past the access balconies. Larder vents form a slot between the gable cladding and the end wall.

15. drying platforms are fronted with timber screens to break up views of washing without impeding air circulation.

13



15



Looking up . . .

16, the south-east and north-east towers, enclosing the drying platform.

17, the north-east stair enclosed between two towers, which restrict views from the main stair windows. These two photographs illustrate the crusty profiling, soffits, etc., which invite weathering. The block exemplifies the antithesis of the glossy, smooth-fronted type of building.

. . . and out . . .

18, from a lift landing, looking out through the west aperture. Environment is experienced within the cluster-block since the view can be seen by everyone moving up and around the building. The wide coping to all access balconies gives a sense of security. This is reinforced at the sixth floor and above by glazed wind screens, as shown on the right.

19, looking along an upper access balcony, showing the sense of enclosure provided by the door canopies and the wind screen. The scale and character of these 'semi-detached' maisonettes are similar to those of the traditional terraced houses of Bethnal Green, and are correspondingly familiar to the occupants in spite of the height. Openings in the wind screen admit limited views.

. . and down

20, the floorscape looking down. The service area, with banked granite setts to street level, allows access for removal vans, refuse trucks, oil tankers and fire engines.

21, again looking down; this time from the bridge, with drying balconies in the right foreground. The three steps leading down to the central stair and lift tower discourage cyclists. Note the projection and profile of the cruciform beams (between the balconies on the north-east tower) with a gutter for storm water and snow.



16, 17



18, 19



20, 21

Jurgen Joedicke

HAERING AT GARKAU

Though his farm buildings at Gut Garkau have become too much of a legend for their designer to be described as a 'forgotten man' of the modern movement, Hugo Haering is certainly one of those figures from the Zone of Silence (to quote Reyner Banham's term from this month's 1960 article) about whom fresh information is particularly welcome. Dr. Joedicke, whose History of Modern Architecture has recently been published in Britain, offers here the first study of Garkau and its creator to appear in English (translated by Gerhard Rosenberg), accompanied by photographs that bring out the startling similarities between Haering's use of materials, and that of the Brutalist connection today.

In northern Germany, among the hills of Schleswig-Holstein, the road from Luebeck to Neustadt leads past Garkau farm whose buildings Hugo Haering designed in 1923-24. The memorable curved plan of these buildings is for many the only thing by which they remember—and vaguely at that—the activity of a man who was among the most significant contributors to modern architectural theory. As an architect one may well compare him in importance to Frank Lloyd Wright and Alvar Aalto. Hugo Haering's theory of 'organic architecture' contains a body of thoughts which are vital for our time. Haering, in the 'twenties, although he was diametrically opposed to Le Corbusier, anticipated in his thoughts and designs certain trends which are valid to this day. He interpreted the notion of 'function' in a new manner, and refuted any kind of predetermination of architectural form.

Hugo Haering was born in 1882 in Biberach, a worthy little town in Upper Swabia. He was of an age with Walter Gropius and Theo van Doesburg. He studied under Theodor Fischer in Stuttgart, among whose students was Erich Mendelsohn. Later Haering worked in Dresden, in Hamburg and in Allenstein, where service during the first World War interrupted his work. He started in practice in Berlin in 1921-22.

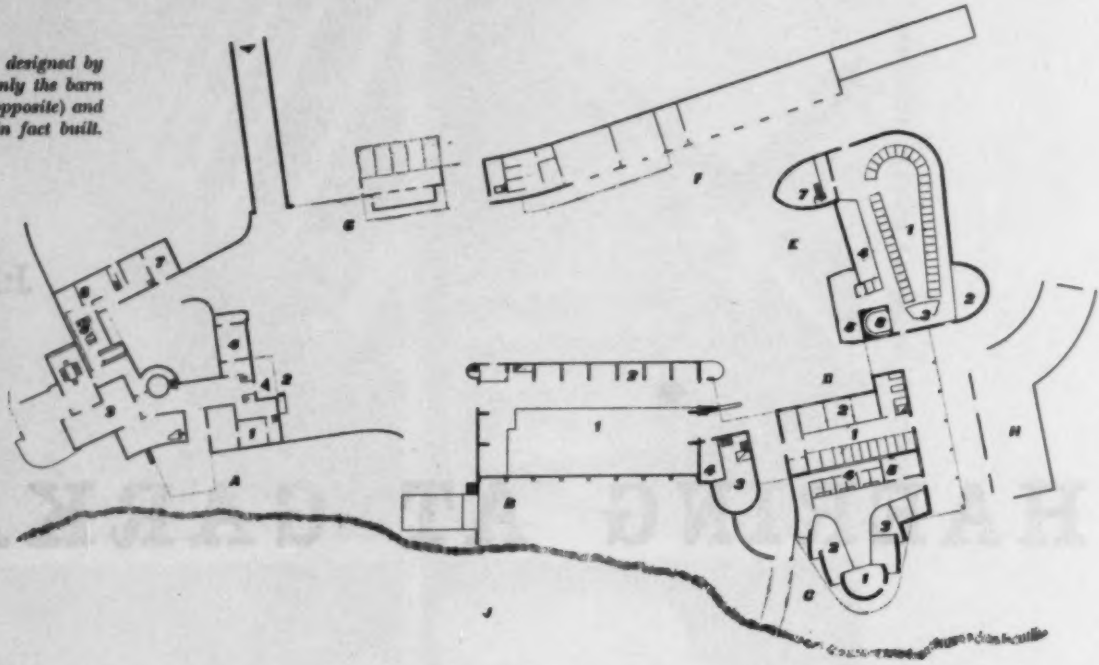
He shared an office with Mies van der Rohe, so that these two very different men worked in close proximity. In the exhibitions of the 'November Group,' a revolutionary circle of young architects, both Haering and Mies showed designs.

In 1924 a 'Circle of Ten' was formed to oppose the reactionary tendencies of the then City Architect of Berlin, Ludwig Hoffmann. Later this circle was widened into an association of architects called 'The Ring.' It included some of the best architects, such as Mies, Gropius, Hilberseimer, Ernst May, Bruno and Max Taut, Wassili and Hans Luckhardt, Peter Behrens, Heinrich Tessenow, Hans Poeltzig, Richard Doecker, Otto Haesler, Otto Bartning, Hans Scharoun and Heinrich Lauterbach. Haering was the secretary and leading brain of the association. The names of the members are sufficient indication of the strongly divergent opinions, and while there was mutual tolerance and forbearing, there could be no unified policy. The only common ground between these men was the search for a new way and the fight against retrogressive movements.

Because opinions differed so widely as to what this new way in architecture should be, it is not possible to speak of a 'Berlin School' as one can speak of a 'Chicago School.' The Ring was dissolved in 1933 and

Plan of the Garkau Farm as designed by Hugo Haering in 1923-24. Only the barn and the cowhouse (illustrated opposite) and a few minor structures were in fact built.

- key
- A—farmhouse
 - 1. grandparents' rooms.
 - 2. entrance.
 - 3. living area.
 - 4. office.
 - 5. kitchen.
 - 6. staffrooms.
 - 7. closets.
 - B—barn
 - 1. barn.
 - 2. auxiliary rooms.
 - 3. feed-cleaning room.
 - 4. stable for sick cattle.
 - C—pigsty
 - 1. hog.
 - 2. young pigs.
 - 3. fattened pigs.
 - 4. pigs.
 - 5. storage-bitcher.
 - D—stable
 - 1. horses.
 - 2. foals.
 - E—cowhouse
 - 1. stable for 42 cows.
 - 2. young stock building.
 - 3. bull.
 - 4. calves.
 - 5. single stables for young bulls.
 - 6. dairy.
 - 7. root cellar.
 - F—cart and implement shed.
 - G—barnhouse
 - H—doughhill
 - I—lake



Gropius, Mendelsohn and Mies van der Rohe emigrated, but Haering stayed in Germany. He was at the head of a private art school and led a withdrawn sort of life because he was in political disfavour. In 1943 he returned to his native town of Biberach, where he died on May 17, 1958, after a long illness.

These few dates describe the outline of the life of a man who retired more and more into the seclusion of his own thoughts. He made this withdrawal into himself after the turbulent years between 1922 and 1933, first by force of political circumstances, but later from his own choice. In the last years of his life Haering found time to methodically interpret his earlier intuitive thoughts and to integrate his architectural theory into his wider world concept.

A discussion of Haering may appropriately start with a description of the Garkau farm, 1, whose buildings are still generally known. What is the significance of these agricultural buildings and how do they differ from others? In what way do they proclaim a new architectural approach? One comes closer to an answer to these questions if one investigates how the architectural form has been related to the structure of the buildings. Is the striking architectural form an artistic play with shapes without relation to the plan, or does it grow from inside, from space requirements, plan and construction?

The plan above shows the whole scheme as Haering designed it, but only the cowhouse, barn and cart and implement sheds were built. The cowhouse, 3-8, is the most interesting. Haering was bent on finding an optimal solution for this, both for the stalling of the animals and for the relationship between stalls and fodder containers. He found that the best way of arranging the cow stalls was to group them around a raised oval feed passage (see his own sketch, reproduced on page 317). Above the cowhouse there is a hay loft, so that fodder can be thrown through an opening in the ceiling straight into the feed passage. The ceiling of the cowhouse slopes outwards and

upwards, which makes it easier to push the hay towards the trap-doors in the hay-loft; it also helps the ventilation of the cowhouse by guiding warm foul air from the cow stalls to the outer walls, where shuttered horizontal ventilating openings remove it from the building. These can be clearly seen as continuous bands between windows and their flat supporting arches. Ventilators, long low windows and white flat arches above them are intended to produce a broad horizontality of character to the building. The form of the building follows in the main its internal structure.

Related to the side of the cowhouse there is a semi-circular young-stock building. No doubt the semi-circular plan-form is necessary as an architectural response to the larger building, but one can also say that it results logically from its function. It is a matter of experience that rectangular stalls are not good for young cattle, because of their tendency to get into a fight and get 'cast' in the corners. A circular form makes it possible for them to extricate themselves in the wider parts of the stalls. Besides 42 head of cattle, the buildings can house 23 calves and young stock; all looked after by one man, because working conditions are so easy. Diagonally across from the young-stock building there is a root cellar, curved in plan with an acute angle, and above it a tower silo for chaff. The two are shown together in 4. The acute angle of the root store has no explainable functional reason and may be Haering's concession to current trends at the time.

In giving credit for Haering's efficiency and completely new approach to his problem, we must remember the part played by the client. Otto Birtner had bought the farm in 1920 when it was in a fairly dilapidated condition, and he pushed the reconstruction forward with great energy. He meant to incorporate all the latest improvements, particularly from the USA, and he found in Haering an architect after his own heart. Their success was so great that

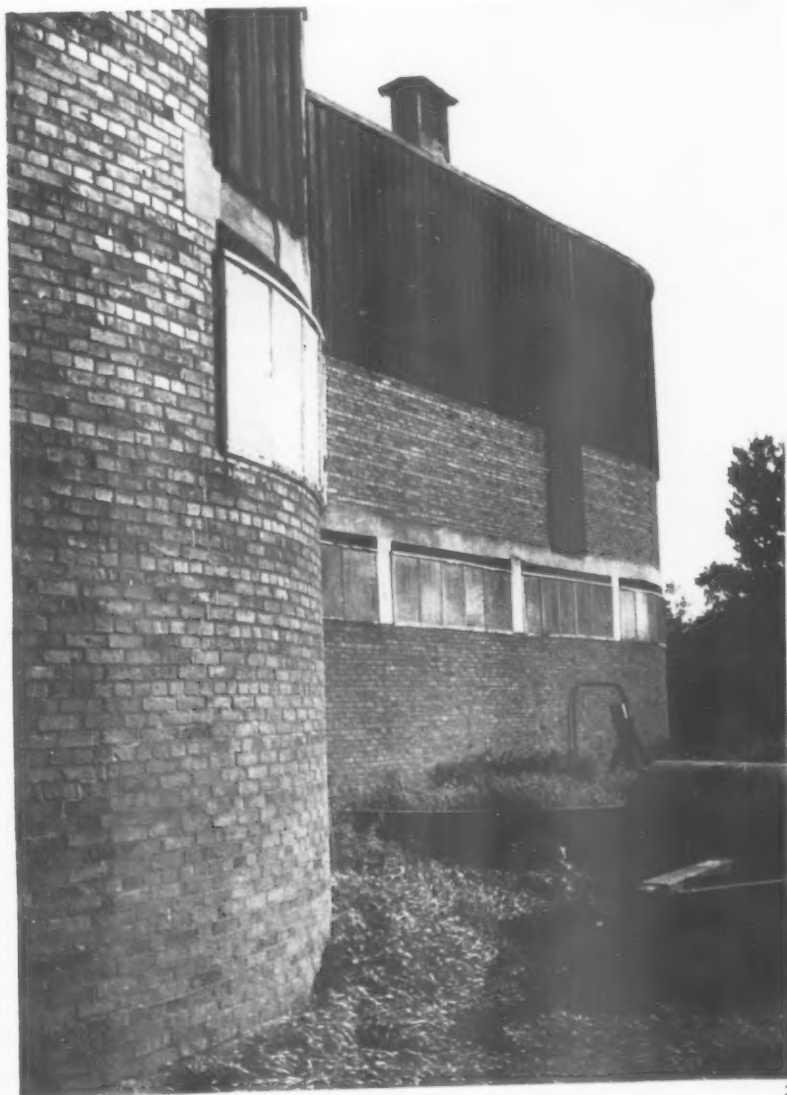
[continued on page 317]



1 (above), the Garkau farm in its verdant setting. The loze building seen in front of the coze-house on the right is a later addition. 2, the barn from the direction of the proposed dwelling-house (see plan on facing page). 3 and 4, the coze-house, the most characteristic of Haering's 'organic' style. In 3 the semi-circular young-stock building is on the left. 4 shows the root-cellar with silo-tower above. The loze building abutting on to the former, at the right-hand edge of the picture, is again the later addition.



2



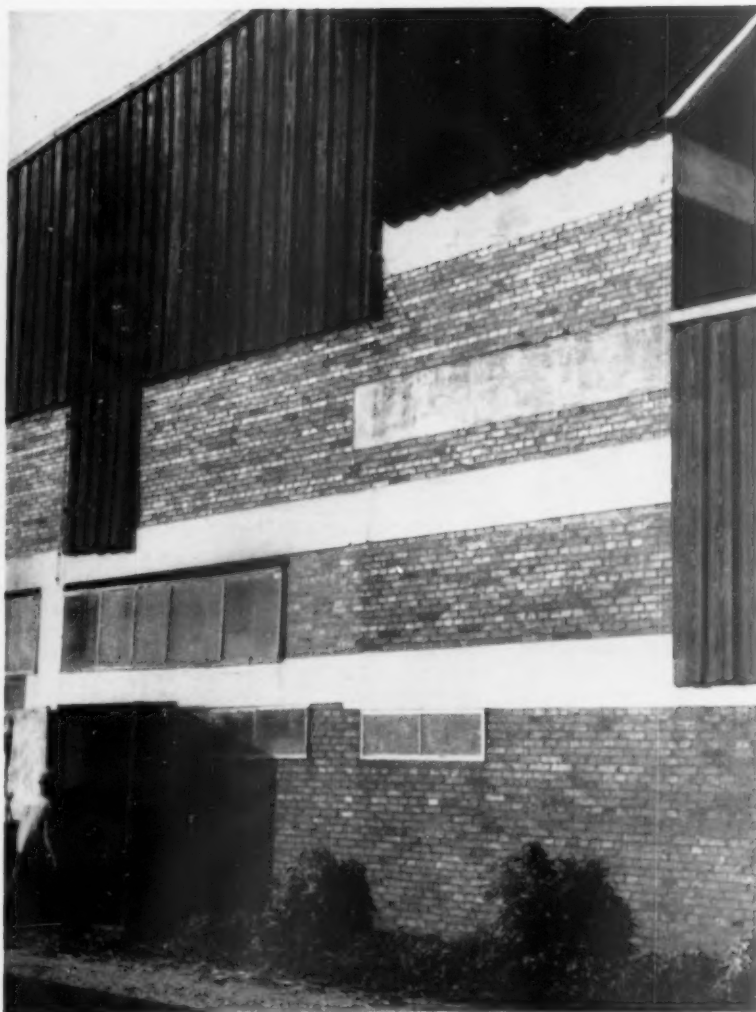
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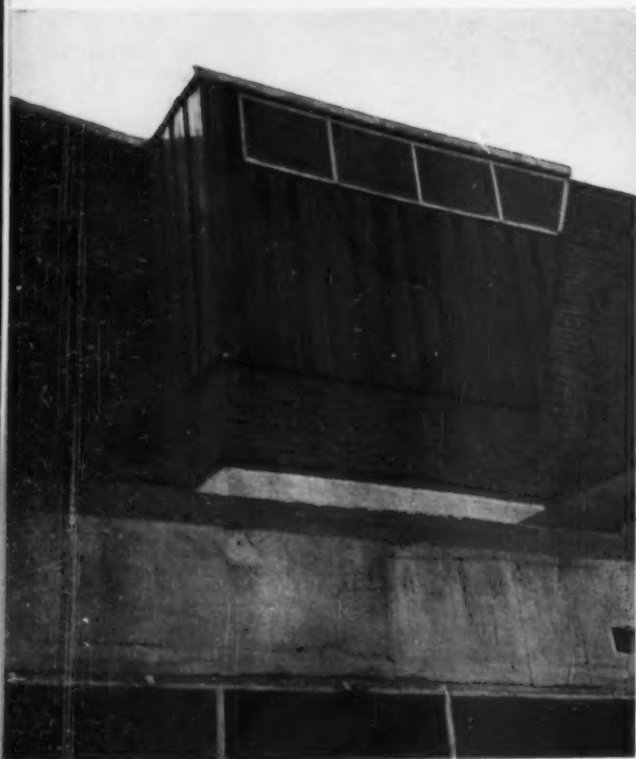
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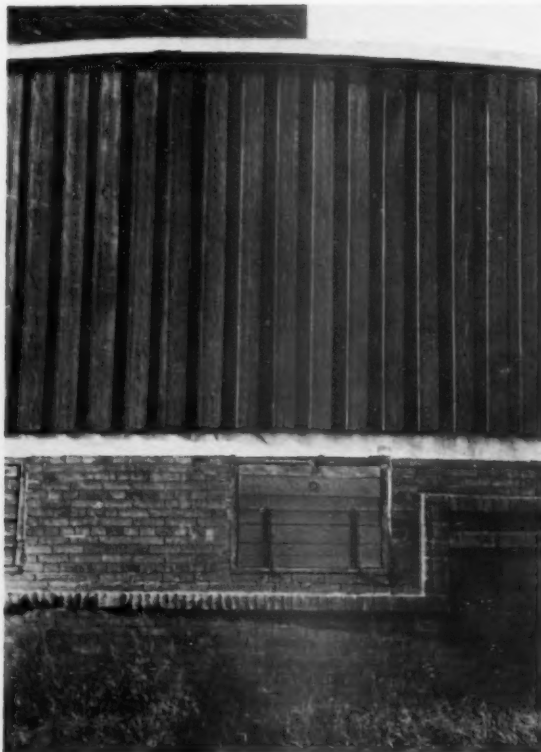
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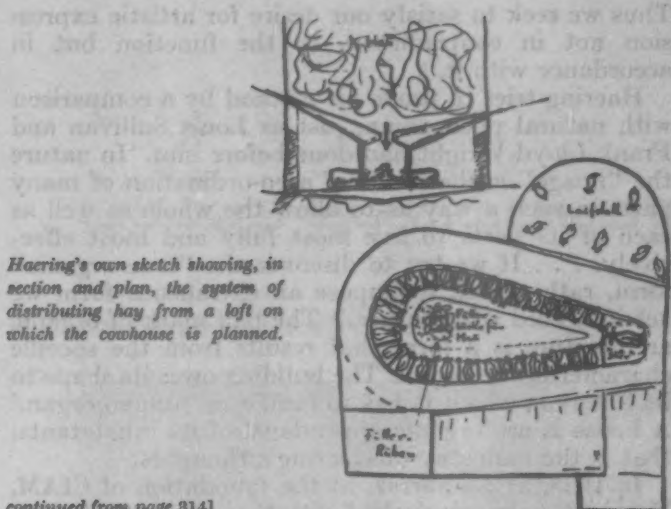


7



8

Four close-ups of the cow-house at the Garkau farm, showing typical Haering detailing: 5, the semi-circular young-stock building; 6, the entrance at the end facing the implement-shed (see plan on page 314); 7, the upper part at the far side—with later addition at foot of picture (this was built as a stable since the separate stable building designed by Haering was not built); 8, wall of root-cellar—see also 4 on preceding page.



Haering's own sketch showing, in section and plan, the system of distributing hay from a loft on which the cowhouse is planned.

continued from page 314

even now, thirty-six years later, German and foreign farmers send delegations to study these buildings. But while there is no doubt about the functional origin of the architectural forms used, materials and architectural character are also in sympathy with the landscape. Local tradition decided the choice of materials; a dark red vitrified brick as in the old farmsteads of Schleswig Holstein, and some painted wood for parts of the external walls. In addition to these traditional materials there is white painted fair faced concrete. The buildings are still in very good order. Haering's command of architectural detail prevented the deterioration which so often mars buildings of the 'twenties when looked at today.

The big barn, 2, is built at right-angles to the cowhouse. Its form is completely related to its function. It consists of a high hangar with a low addition along one side, which contains all the ancillary rooms. The construction is particularly interesting. Haering wanted to eliminate all structural members that might obstruct the use of the storage space—such as tie-beams, struts and king posts. As only timber could be used, Haering chose a timber construction which used planks in a form known as the 'Zollinger' roof.¹ This is erected on a reinforced concrete base and consists of planks of about 10 feet length which intersect at an acute angle and are nailed at intersections. The cross-section of the whole roof has the shape of a pointed arch and follows the line of pressure, thus reducing internal stresses to a minimum area. There is no doubt that this particular roof form also showed certain 'expressionistic' tendencies which were popular at the time, but it is typical of Haering's method of working that every architectural form was fundamentally related to the function of the building.

Other architects may have used similar methods, but there are essential differences even where their work seems to have similar aims. Michel de Klerk, the leading architect of Wendingen, designed interesting sculptural forms but they do not arise from within; they are rather an external application. No doubt Haering knew de Klerk's buildings, but there is no evidence of his having been influenced by de Klerk. Haering's aim is not confined to the interpretation of

function, but at giving formal expression to the essential character of any building that he is required to design. First it is a matter of the intellectual analysis of the programme. Therefrom results the functional choice of plan and of the type of construction; from the latter the architectural form results. We shall discuss later how such an 'analysis' is carried out.

There are certain similarities between Haering and A. Eibink, who tried to establish the peculiar architectural forms of reinforced concrete. But Haering delved more deeply than Eibink. It is not a matter of form expressing structure, but of finding a form that expresses the efficient fulfilment of its function—'Materials serve in this task—they are not in command nor are they even autonomous.'² Between Haering and Erich Mendelsohn there is a closer relationship, if only because they worked at the same time and in the same city. Both were members of the 'Ring,' both worked in the stimulating atmosphere of the Berlin of the 'twenties, and Mendelsohn's architectural forms are more strongly related to function than those of de Klerk. The horizontal emphasis which is produced by continuous bands of windows in his department stores is sensible because it allows for shelves along external walls. Haering differs from Mendelsohn mainly in matters of temperament. He is a careful worker, quite averse to any superficial artistic glamour. Mendelsohn's explosive manner, by contrast, often finds an excess of sculptural form irresistible.

At the time when the farm was built at Garkau, Le Corbusier designed the villa La Roche-Jeanneret. It seems that there could not be two more dissimilar designs. Yet Haering himself has pointed out that there are common features between his and Le Corbusier's work. He explains that the renewal of architecture would have to take place in two stages. The first stage would have to deal with an exploration of the changed requirements of the time and would aim at functional efficiency. Haering uses the word *Organwerk*, 'the task of developing the architectural organism.' The second stage deals with the *Gestaltwerk*, the task of finding an adequate architectural expression or image. Le Corbusier determines the architectural form of functional efficiency by geometrical means. If we talk hereafter of geometrical means we refer only to those geometrical elements which Le Corbusier calls 'pure'; i.e. the cube, the tetrahedron, the cone, the cylinder and the pyramid. Haering, however, looks for architectural forms which arise from the function itself. Only at the threshold of the second stage, the *Gestaltwerk*, the formulation of the architectural image, do the ways of Haering and Le Corbusier diverge.

'Because for me the advance began with the reorganization of the broad basis of architecture according to the new requirements of a highly technical age and a new desire for more light and air, the "new way of building," (that is Haering's term for his approach to architecture), ran alongside that of Le Corbusier. However, our ways diverged more and more. It became evident how important was the second stage of architectural designing, the imaginative stage. When Le Corbusier says that architectural form should be based on geometry he introduces an

¹ Now known as the Lamella roof.—Editors.

² From a letter from Haering to Heinrich Lauterbach, dated January 18, 1929.



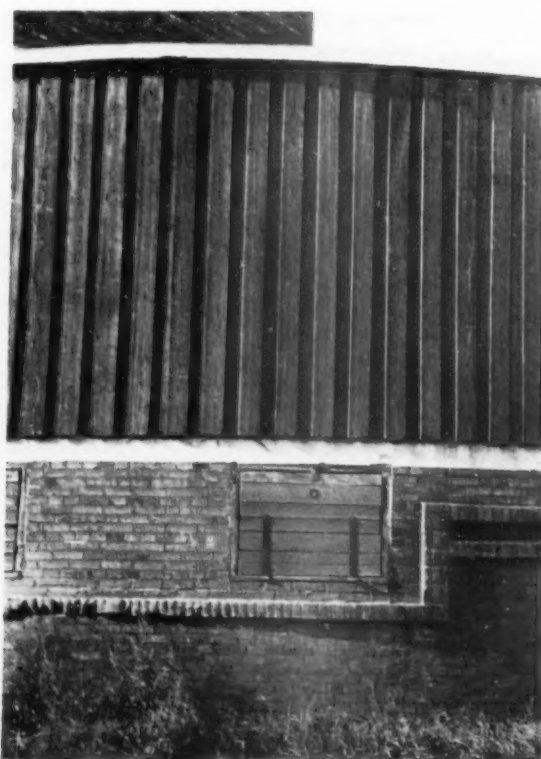
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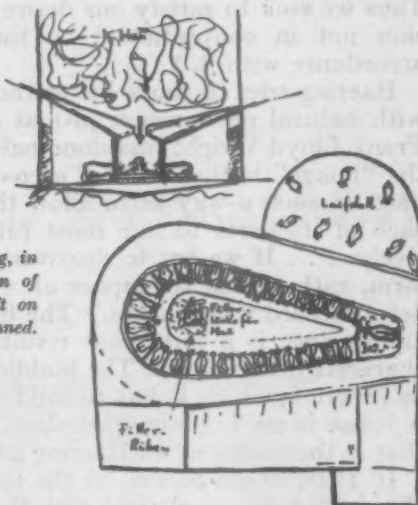
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continued from page 314]

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² From a letter from Haering to Heinrich Lauterbach, dated January 18, 1930.

external point of view. He does not evolve his designs from within. . . .³

Haering also writes: 'Le Corbusier uses reinforced concrete. But he does not give expression to the organic forces at work in reinforced concrete. He only makes use of it in order to produce the pure forms of geometry. . . . Since Le Corbusier is interested in pure forms only, he is not concerned in establishing a primary relationship with his material, which remains merely a means to the end of geometric form.'⁴ And elsewhere: 'Geometrical forms are not basic. Geometrical theorems are derived and abstract laws. A unity which is spread over a multitude of elements by means of geometric forms is merely formal and not organic. We, however, want organic unity, a unity with life. A polished metal sphere is certainly a thrilling concept for the intellect, but a flower is a living experience. . . . It may so happen that the image of a thing coincides with a geometrical form—as in a crystal—but the geometrical pattern is never, in nature, the origin of the image.'⁵ A basic maxim of Haering's thought and work is that the architectural image can only be discovered through a study of function. 'We want to examine things and allow them to discover their own images. It goes against the grain with us to bestow a form on them from the outside, or to impose some abstract modulator upon them. . . .'⁶

Haering distinguishes two principles in past and present architecture: one principle creates forms or images in order to produce an artistic effect, the other looks for the efficient solution of a task. The two may be opposed to each other, because expressive and efficient architectural forms do not always agree. But Haering does not find the two principles contradictory so much as consecutive in historical sequence. In a wider sense, Haering considers—with Goethe—that the development of mankind is an educational process in which certain epochs and certain nations play each their allotted tasks. Thus, Haering speaks of a 'pre-geometrical era,' when houses, tools, utensils and weapons were designed so precisely for their function that they have had little need to change up to this day. 'The design of these things resulted from meeting functional requirements, they had to be useful for a specific purpose. Thus they had the character of organic creations.'⁷ Haering contrasts these anonymous creations with those works of architecture which from the very beginning used geometrical forms. They governed the architecture of Egypt, Greece and Rome; they were also found in the Middle Ages and remain at the present time. However he discovers in Gothic and Baroque architecture certain trends which may be considered the precursors of a new era. There has been a discrepancy between the demands of function and expression in architecture. It became possible to resolve this discrepancy when 'we discovered in our own time, that many objects which had been modelled only for specific functions, were the more acceptable to us in their form the more purposeful they appeared to be, and that their functional design seemed to us to reflect a new spirituality. . . .

Thus we seek to satisfy our desire for artistic expression not in contradiction to the function but in accordance with it.'⁸

Haering tries to prove his method by a comparison with natural phenomena, just as Louis Sullivan and Frank Lloyd Wright had done before him. 'In nature the "image" is the result of a co-ordination of many parts in such a way as to allow the whole as well as each of its parts to live most fully and most effectively. . . . If we try to discover the "true organic" form, rather than to impose an extraneous form we act in accord with nature.'⁹ The hall mark of organic architecture is a form that results from the specific character of the object. The building owes its shape to its function, which it has to fulfil as a 'human organ.' A house is an 'organic appendage' of its inhabitants; that is the mainstay of Haering's thoughts.

In 1928, at La Sarraz, at the foundation of CIAM, Haering's opinions clashed with those of Le Corbusier. Le Corbusier demanded a 'modern architecture,' Haering a 'new way of building.' Le Corbusier demanded a return to pure geometry, Haering tried to win the congress over to 'organic architecture.' Le Corbusier won through, and his ideas dominated the architectural development of the following years. In retrospect this development seems necessary and justified. To accept Haering's ideas at that time would have led to confusion rather than to clarity. It was necessary to accept the discipline of simple geometric forms in order to overcome the knick-knack ornamentation of the immediate past. The meaningful, easily understood theories of Le Corbusier were helpful to many architects. With the advent of Alvar Aalto the second stage of modern architecture began; then some of Haering's ideas took on a new lease of life—although he was unknown to most of the men who used them. These ideas were: the refusal to determine architectural form merely from geometrical principles, and the use of natural materials such as timber and masonry, as well as of artificial materials such as reinforced concrete, according to the demands of each scheme and with regard to regional influences.

Haering denied that the geometric principle was an alternative to the organic principle. 'The essential nature of a project leads to a decision of what kind of image should express the individual building.'¹⁰ He brings the discussion of architectural form back to the point where a promising solution can be undertaken: the clarification of the conditions which are the basis of architectural form. Therein lies Haering's great significance for our time; because it is happening again in this day and age that problems of architectural expression are being treated in an abstract manner, remote from any consideration of internal space, function or construction. From such an attitude the step towards formalism and even eclecticism is short. Already we find indications of such trends in Edward D. Stone's work, and even in Minoru Yamasaki's.¹¹

Haering's ideas are a constant reminder that any formal differentiation or enrichment is genuine only if it is related to the essential nature of the architectural problem.

³ From a paper 'The New Manner of Building' given at the Technical University at Berlin, February 27, 1932.

⁴ 'Geometry and Organic Design,' *Baukunst und Werkform*, 1951/59.

⁵ 'Approaches to Architectural Form,' *Die Form*, 1925/1.

⁶ 'Geometry and Organic Design,' op. cit.

⁷ See Prof. Jordy's article: 'The Formal Image, USA,' *AR*, March, 1960.

HOUSE AT ARKLEY, HERTFORDSHIRE

ARCHITECT | JOHN VOELCKER

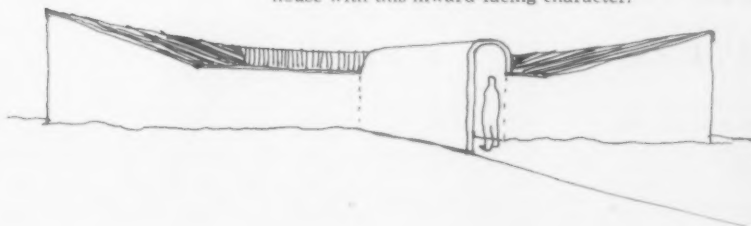


1

1, the house as seen from the lawn on the south side. The approach is between the screen-wall on the right and the garage beyond it, and both the front and service entrances are within the courtyard enclosed by the two wings of the building. The small window in the gable wall lights the music-studio of the owner, Mr. Humphrey Lyttleton. The studio also has larger windows facing east.

2, looking along the west side, with the high-level sitting-room windows.

Below, the architect's first sketch for a one-storey house with this inward-facing character.



2



HOUSE AT ARKLEY, HERTFORDSHIRE



3



4



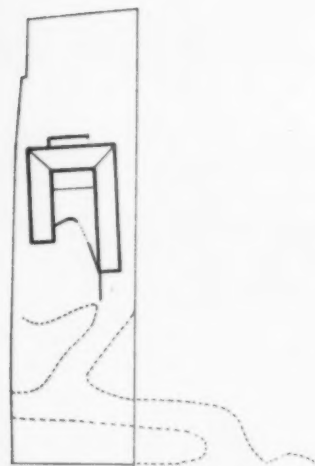
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The house is planned round a semi-enclosed courtyard, designed to give privacy in spite of the narrow plot (see site-plan on this page).

3, the open side of the courtyard from the lawn in front. It is approached from the far side of the sloping brick wall.

4, looking into the courtyard from the end of the screen-wall. Also on the left is the curving wall that partly closes the open side of the courtyard.

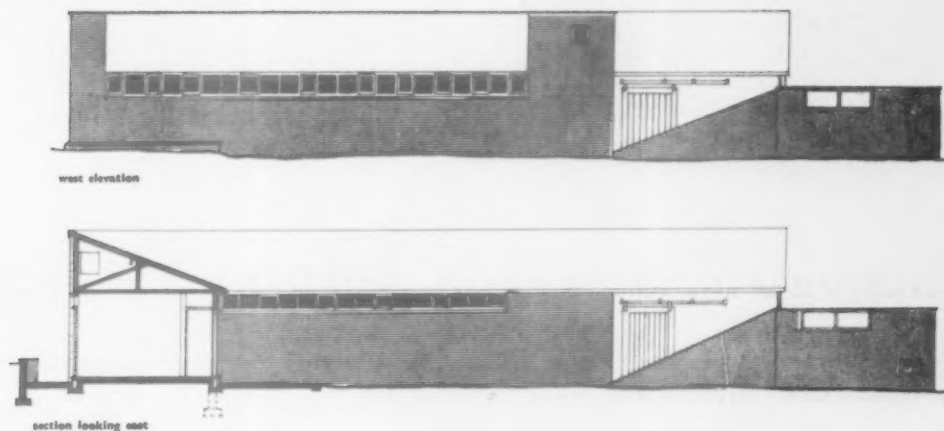
5, the courtyard, with the same curving wall on the left. The front door is recessed in the corner. The windows to the right of it light the connecting passage between the living and bedroom wings, which passes through the playroom and is partly open to the kitchen.



site plan

6, photomural in the entrance-hall by John McHale. The door with *trompe-l'oeil* pilasters and entablature is that of the lavatory.



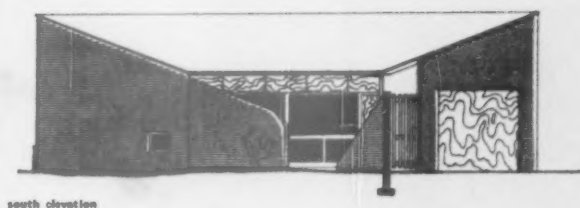
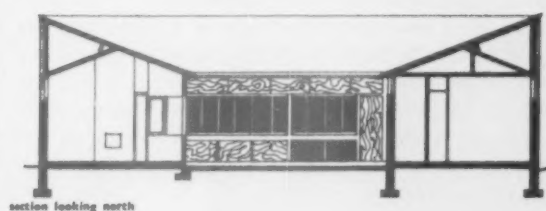


The site is one of four plots, formerly part of the garden of a Victorian house, all approached by an access road off Barnet Lane. Well grown evergreen trees shade the site from the road. To make the best use of the plot and ensure privacy for the owner, Mr. Humphrey Lyttleton, the house was designed to enclose a courtyard opening on to a lawn on the south side.

Externally the walls are faced with Wessex Dark Multi bricks, the roof is cedar shingles, windows are painted softwood with standard metal casements. Doors and external panels are faced with varnished Douglas Fir plywood. Internally the walls are constructed of wood/concrete composition blocks, either fair faced,

plastered or battened and lined with Douglas Fir plywood. The curved wall enclosing the hall is lined with a photograph assembled by John McHale. The living-room ceiling is lined with Western Red Cedar match-boarding. Over the studio is a ceiling of acoustic fibre, supported on gold-anodised expanded metal. The living-room and studio floors are surfaced with Banga Wanga wood-blocks, the hall, dining-room, kitchen, play-room and part of the courtyard are clay tiled, and those of the bedroom wing are cork tiled.

Heating is electrical, mineral insulated cables being embedded in the sub-floors of the studio, living-room, hall, dining-room, kitchen and play-room. The system is controlled by an indoor/outdoor thermostat and provides background heat. Heat for the bedrooms and focal heat for the living-rooms is provided by electric radiant or convector fires. To make the most of this form of heating the thermal capacity of the walls has been reduced by using plywood panels on battens where



possible and by the extensive use of aluminium foil fixed in the cavities of the external walls. The ceilings and the external edges of the sub-floors are insulated with fibre-glass quilt.

ADDITIONS TO A HOUSE IN BAYSWATER

ARCHITECTS ALISON AND PETER SMITHSON

The site is the paved garden court of a house in the Bayswater Road belonging to Mr. Wayland Young. The function of the new wing is to provide two study-bedrooms and an extra bathroom. It was intended to preserve the character of the garden as far as possible and the new work was, therefore, conceived as a long pavilion fitted between the old garden wall and the existing pool in the centre of the paved area. The other 'fix' was an existing plane tree growing by the garden wall, on which there is a tree preservation order.

The main structure may be regarded as consisting of a central supporting element with secondary supporting elements one at each end of the pavilion. Each of these elements contains part of the fixed equipment of the pavilion; that is to say, the end elements contain in one case a wardrobe and cupboards and, in the other, filing cabinets, book stores and space for a desk-top to be hinged up out of the way. The central unit contains the bathroom and lavatory. The roof slab, which is covered with a layer of pebbles, is supported by the wall on the corridor side, and by a deep concrete face-beam on the side toward the garden. The corridor is thus the space left between the new work and the existing garden wall and is not covered by the roof slab. Instead it is roofed in wired glass laid to throw off rain-water. Halfway along the corridor is widened to accommodate the existing plane

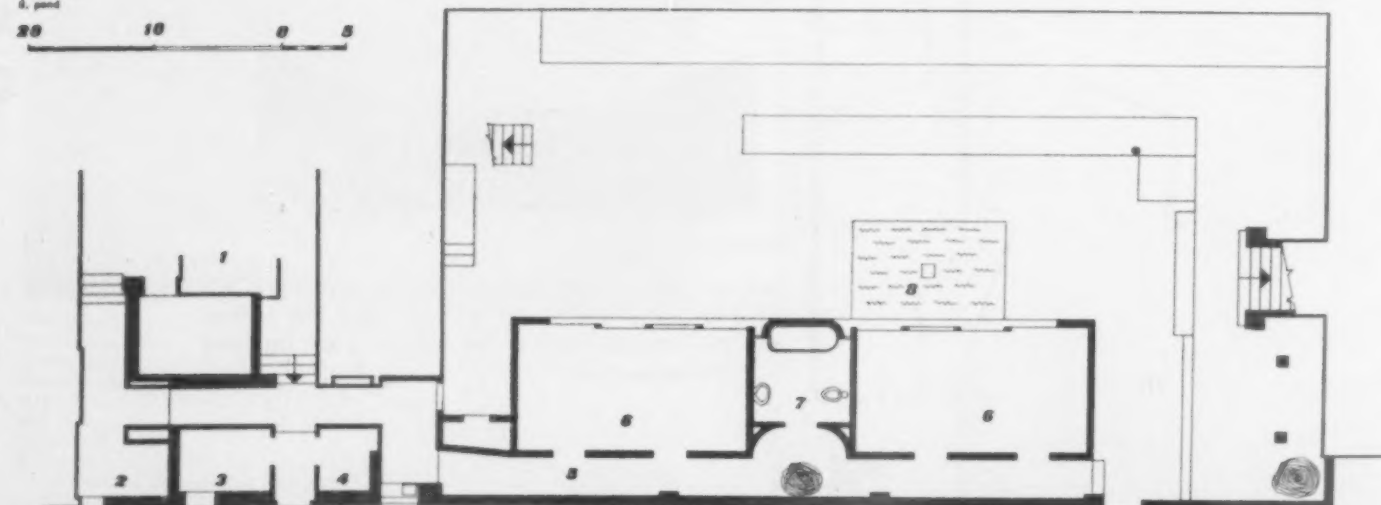
tree, which passes through the glass roof. This has been made water-tight by a lead flashing round the trunk of the tree.

All structural walls are of load-bearing insulating blocks which are rendered and painted on external walls, plastered on the inner walls of the rooms, and left untreated in the corridor. The bathroom, whose door is exactly opposite the tree, has tiled internal walls and presents a solid wall to the garden, daylighting coming through two vertical strips of frosted glass at either end of the bath, and a double-glazed dome-light over the bath which affords the bather a view of the underside of the plane tree and the stars. In contrast to the blank bathroom wall the two flanking rooms have practically no solid wall towards the garden at all, but have sliding windows running from floor to ceiling and the full width of the room. The woodwork of these windows is stained black so that visually each room presents a completely unwallled appearance on the garden side. Inside, a folding and hingeing wooden screen makes it possible to separate the sleeping area from the rest of the room.

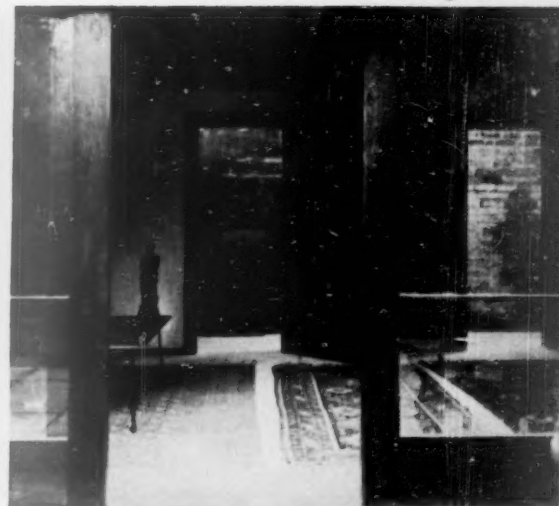
The pebble layer on the roof is of some depth, partly to provide standing room for plants in pots or tubs and partly to prevent any sudden run-off of rain-water. It is expected that the run-off will be sufficiently slow for it to be handled by trickle gulleys, instead of conventional down pipes.

- Key
1. existing house
 2. wc
 3. store
 4. fuel
 5. corridor
 6. bedroom
 7. bathroom
 8. pond

20 10 0 5



ground floor plan



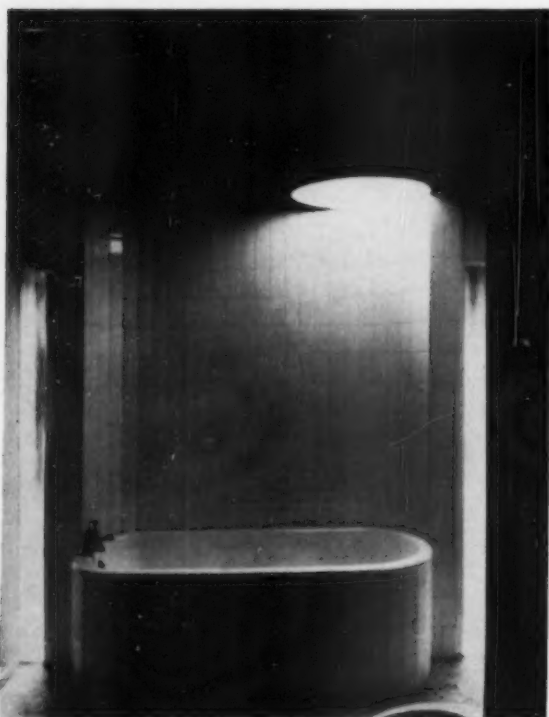
- 1, the new wing in its garden, seen from an upper window of the house to which it has been added. Beyond the roof is the street, separated from the new building by an existing garden wall and the narrow corridor by which the rooms in the new wing are approached.
- 2, looking along this corridor, with the old garden wall on the right, the untreated insulating-block wall of the new wing on the left and, within the corridor, the plane tree that grows through the glass roof.
- 3, looking into one of the study-bedrooms from the garden, with the corridor beyond. One of the original buttresses of the garden wall is seen through the door straight ahead, and also in 2.
- 4 (below), the new wing from the paved garden; original house in background.





5, inside one of the study bedrooms, showing the all-glass wall consisting of floor-to-ceiling sliding windows, facing the paved garden and the pool.

5



6



6, the bathroom, lined with tiles, showing the circular roof-light with double-glazed dome (see the view of the new wing from above: 1, page 323). 7, the plane tree which has been left standing in the corridor, as seen from the bath.

7

ADDITIONS TO A HOUSE IN BAYSWATER, LONDON

buildings when 'bad examples' (from the didactic point of view) tended to be buried in 'zones of silence'. It is now possible to look back and evaluate the white sheep and the black sheep on their merits as buildings, and not on their meanings as teachers. In this month's 1960 article we printed the results of a questionnaire on the present status of certain masterpieces of modern architecture, and a paper in which Reyner Banham sets out his personal opinions on the changed status of Modern-Movement history itself, both as an intellectual discipline and as a didactic guide for the practitioners of modern architecture today.

1960

HISTORY UNDER REVISION

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Evidence of changing attitudes to history is not difficult to find, not always very convincing when found. Evidence of changed ideas about historical monuments and historical figures is more plentiful, and more substantial. On another page of this issue, for instance, will be found Jurgen Joedicke's analysis of a building and an architect whose 're-discovery by the young' has been publicly dreaded by members of the middle-generation of modernists. Also this month there will appear a book by Reyner Banham, editor of the 1960 series, whose aim is to some extent a revision of the accepted masters and masterpieces of the modern movement, under the symptomatic title of *Theory and Design in the First Machine Age*, thereby implying that the first thirty years of the present century are dead enough now to be classified as an 'Age'. Underlying the changed status of men, buildings, movements and periods is the plain fact that modern architecture has moved on in time, has moved out of the phase when all its works had to be considered as didactic, as exemplars of the way to

build; when 'bad examples' (from the didactic point of view) tended to be buried in 'zones of silence.' It is now possible to look back and evaluate the white sheep and the black alike on their merits as buildings, and not on their meanings as teachers. In this month's **1960** article are printed the results of a **questionnaire on the present status of certain masterpieces** of modern architecture, and a paper in which Reyner Banham sets out his personal opinions on the **changed status of Modern-Movement history** itself, both as an intellectual discipline and as a didactic guide for the practitioners of modern architecture today.

Reyner Banham

HISTORY AND PSYCHIATRY

The written history of the Modern Movement in architecture is a product of that movement's second, or Academic phase, much as Vasari's *Lives* of the great Renaissance artists was a product of the second, or Mannerist phase of humanistic art. So closely is historical writing associated with that second phase of Modern Architecture, that its limits in time may be set, conveniently, by two works of the Movement's most favoured historian: Sigfried Giedion's *Bauen in Frankreich* ushered in the period in 1928-9; his *Space, Time and Architecture* began to undermine its intellectual basis in 1940-41.

The period, dominated by CIAM and the fight to establish Modern Architecture outside the countries (Holland, Germany, France) that had brought it to birth, was one of consolidation, not of innovation, and contributed surprisingly little that was new to the Movement's stock of ideas. In many senses this is true of the historical writing of the period as well. Not that an historian is often able to make any startling new contributions at the best of times—sensational new documents rarely make more than marginal rectifications to the main body of evidence available, and radically new interpretations of the evidence are nearly always forced by the weight of the evidence itself.

But when an historian's primary sources are all embedded in the live traditions of an existing body of live men who are all of his own generation or the generation immediately preceding, two further effects also seem to come into play. Firstly, the 'evidence' seems to consist only of the most current of current opinion, and the facts that support it; secondly, the facts about the previous fifteen to twenty years are such common knowledge that no one really considers them worth recording. These factors, rather than any deliberate *Suppressio Veritatis*, seem primarily responsible for that peculiarity of all modern-movement historiography of the academic phase, summed up in a statement by Bruno Taut:

With the outbreak of the War (1914) the history of modern architecture may be considered closed.

In Pevsner's *Pioneers of the Modern Movement*, which concludes, effectively, with the Deutscher Werkbund exhibition of 1914, a similar historical concept appears to be at work—but only appears, since the explicit programme of the book is to cover the Pioneers, the confusion deriving from the fact that some of the Pioneers lived to become masters of the next phase. In *Bauen in Frankreich*, the history appears to stop even further back, in the nineteenth century; works of the late Twenties are made to appear directly derivative from buildings completed before 1900, and in his introduction Giedion speaks of going back to ultimate beginnings and ignoring all the 'débris' that had accumulated on top of them.

The upshot was the creation of a zone of silence, extending from about 1910 to 1926, the period when most of the Masters of Modern Architecture were perfecting their personal styles, as individuals, and the International style, as a group. The débris that accumulated in this period was—near enough—the historical evidence for how these styles were developed. Much of this was probably beyond discussion at the period, either because it was too obvious to all those present, or because the historians were naturally reluctant to air, in public, the dirty linen of their friends (this is still a problem for a person writing about the period today).

In the process of creating this Zone of Silence, two alternative misconceptions were propagated—one, always in favour with some group or another, that there were scandals to be hidden; the other, the official line until fairly recently, that the Modern Movement is a direct continuation of the Rationalism and Functionalism of the nineteenth century. As a polemical device this latter proposition was immensely useful, since it meant that modern architecture could be defended against the Philistines and sold to the undecided on grounds that they could accept and respect—honesty about function, materials, structure, respect for hygiene, economy and rationalization of construction.

Questionnaire

MASTERPIECES OF THE MODERN MOVEMENT

How far is history under revision? What is the status of the pioneering monuments of Modern architecture? To assess the present state of opinion on **Masterpieces of the Modern Movement**, a sample of architects was polled for views on seven selected buildings. The sample consisted of British and foreign architects in practice, who were either known to have views on architectural history (eg, Paul Rudolph, André Wogensky) or were present when some part of that history was being made, though not actually involved in it (eg, Ernő Goldfinger, Walter Segal) or might be taken as reasonably representative of younger British architectural opinion of today (eg John Voelcker, Michael Laird, James Stirling). The return on questionnaires sent out was expected to be low, as on all direct-mail polls without hidden persuaders, especially as architects are not normally writing men, but in this case it was only 25 per cent. There is a known reason for this poor return, which will be discussed later, but even so the results appear to confirm the suspected tendencies of current opinion.

The seven buildings were **selected on a professional historian's basis**, though not by any of the techniques that might be expected. With one omission, they are the **most-borrowed slides** of modern-movement buildings before 1926 from the library of the Courtauld Institute of Art. This library is the normal source of illustrative slides for historians of art working for the internal and extension courses of the University of London, and particularly heavy borrowing of any individual slide is a fair index of the acceptance of its subject matter as important by run-of-the-mill historical opinion. There should be eight buildings indicated by this checking method, not seven. The one that has been omitted from the questionnaire is the Red House, because it has been so loaded up with political significance in the recent past that it is extremely difficult to take up reasonable opinions about it from some architects.

For the selected seven a wider range of opinion was found than had been expected. What was asked was a statement of Yes/No opinion on the **historical status** of each building,

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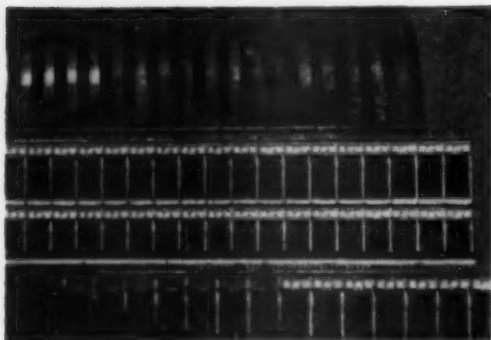
So rare was direct discussion of the aesthetic or symbolic content of Modern architecture in this period, that the exceptions strike the eye, and have acquired a status out of all proportion to their intrinsic content. In this group one might name the first English-language edition of Moholy-Nagy's *New Vision* (*von Material zu Architektur*) and the sheaf of constructivist-slanted essays published in England in hard covers as *Circle*. However, the third work that is often found shelved alongside these two in libraries is of far greater consequence. The Museum of Modern Art's great catalogue of the exhibition *Cubism and Abstract Art*, edited by Alfred Barr, is the monument of the one grouping that really kept stylistic, aesthetic (and thus culturally interesting) discussion of modern architecture alive. We owe to the Barr-Johnson-Hitchcock circle the phrase 'The International Style' and we owe to them also, as the organizers and inspirers of the exhibition, the other great catalogue, still a standard work, *Bauhaus 1919-1928*. These last two volumes together, like the two halves of the charge in an atom bomb, contained enough critical mass to detonate and demolish the whole myth of the Modern Movement as a persistence of the nineteenth century into our own times. Yet for a long time nothing happened, in spite of the trickle of revisionary information initiated by *Space, Time and Architecture*.

What was needed, probably, was some telling incident to form a positive trigger—in my own case this was a statement in an early talk on the BBC Third programme, to the effect that the Dutch *de Stijl* movement had considerable influence on the Bauhaus. Reference to the pages of *Bauhaus 1919-1928* produced ample visual justification for this proposition, but it also produced a positive statement that *de Stijl* was of little consequence in Bauhaus history. Such patent contradictions between fact and propaganda certainly stimulated my own earliest researches into the history of the Modern Movement; they may well have been the stimulus for others, notably Bruno Zevi's book on *de Stijl* under the title *Poetica dell'Architettura Neoplasticista*. By the beginning of the Fifties, the existence of the Zone of Silence was widely noticed, its contents the subject of interest and speculation.

However, serious research and reappraisal had not gone far before they were overwhelmed by that anomalous and largely irrelevant wave of neo-Palladianism to which reference was made in 1960/1/ii. Yet when that wave receded it left the intellectual climate of the younger modern architects permanently changed. Firstly, it seems to have broken their unthinking and purely conventional acceptance of the traditional posture of modern movement architects, ever poised for a bold step forward into some diagrammatic utopia. The loss of this compulsive progressivist reflex seems to have hurt politics more than it has hurt architecture. It may well be that this mass

continued
on 4/vi

a Yes/No opinion on its *rating as a masterpiece*, and general comments on the present significance of the work. The buildings are *illustrated below with sample comments*, for, against and expository, and the conclusions to be drawn from the results appear on 4/vi-vii.



Paxton: the Crystal Palace

I have never been able to withhold admiration from this building. I have never been troubled by its period-conditioned plan which, under other circumstances, I would find highly disturbing . . .

Scientifically it is important because the whole building is made up from the combination of a single repeated element, and not—as with the prevailing style—from dissimilar elements. The evaluation of spaces is controlled by the ways in which this repeated surface is put together and not by the literary implications of dissimilar elements (voids, solids, centre-lines, columns, etc.).

Not much to learn from it, but in its time a far thought, and a thoroughly thought-out concept.

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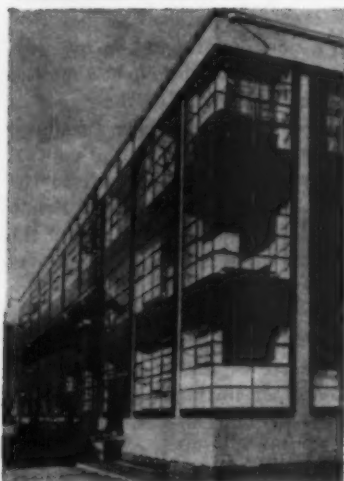


Mackintosh: Glasgow Art School

This building has always been extremely alien to me and I have never had courage to see it in its historical perspective.

Significant for its controlled plastic qualities—most successfully controlled here through understanding of materials' intrinsic limitations, as evident in formation and flow of wrought iron-work particularly—perfectly conforming to basic character.

A masterpiece it is most certainly. But it is also historically important because it shows the passage between neo-Mediaeval and Modern architecture. Even more, the virtues inherent in the neo-Mediaeval style.



Gropius & Meyer: Fagus Factory

Announce la révolution architecturale et plastique de notre époque.

It was a new building that demonstrated a conception and principles which, without much intellectualism, shallow philosophy, slogan-mongery and bastard emotionalism, appeared at the right time and has become a basis for building that has endured.

In spite of its 'purity,' it cannot be rated a masterpiece.



Wright: the Robie House

The first statement of freedom in space successfully enough done to be called a masterpiece.

Oeuvre importante historiquement, mais rapidement démodée.

As a prototype this is not important, but within the context of Wright's work it seems to crown his suburban boulevard thoughts. Till now I have found no particular use for those thoughts, yet the image lays lodged in my mind.



Perret: Notre Dame, Raincy

This building shows Perret's dilemma: though a superb engineer in reinforced concrete, he could never quite free himself from post-and-beam conceptions of traditional building, and the material in his building seems to be a substitute for stone. The tracery in Notre Dame du Raincy is characteristic of a mason's use of a material that can take tension.

Almost a masterpiece, certainly consistent, but drenched in historicism. Certainly not modern.

Clarity of structure and prefabricated infill so controlled in expression as to postulate a perfectly positive means of integration surpassing any precedent.

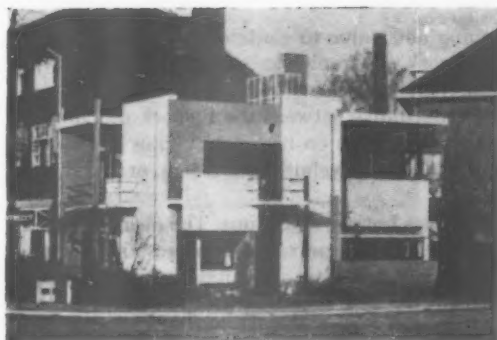


Mendelsohn: Einsteinium

Poor old Einstein, it looks like a sort of pre-decease mausoleum commissioned by the municipality.

The Einsteinium . . . is another warning. It shows that plasticity is not a thing that can be applied from the outside, it can only spring from the inside, from the organization of space and the construction. Therefore we should also need to observe the beginning of shell construction in Germany in the Twenties.

It is the masterpiece of Expressionist architecture. And it shows that the figurative idea is independent of the structure used. A good lesson for positivists.



Rietveld: Schröder House

The only house outside of Le Corbusier and Mies that qualifies for the word Masterpiece.

I was eighteen years old when van Ravesteijn showed me this house and said our job was to build 'nervous organisms.' I do not understand to this day what he meant. I always thought of this house as a cardboard Mondrian.

Some later works by Rietveld are more significant, even for de Stijl.



One of the most important results of the questionnaire lies outside any attempt to analyse the answers given. This is the response of declining to give opinions. Not of *failing* to give opinions, but of **positively declining**. This took various forms, such as 'Obviously they're all great buildings,' or 'How can one give Yes and No answers to such things? There are so many things to be considered: for instance, what do you mean by masterpiece?' Behind this and such other evasions as 'It's too easy to say something clever but superficial...' there very clearly lurked a desire not to commit oneself, not to say something that might be taken up by someone more expert, or something that might look silly in two or three years time (both explanations were offered as excuses when failures to reply were followed up). The fear is no longer of history, but of **historical opinion**, its new-found expertise and its seemingly unpredictable changes of emphasis.

Now to the factual evidence of the replies given. Firstly the points which are established beyond doubt, and there are only three. No one positively disbelieves the historical importance of the **Crystal Palace**, **The Glasgow School of Art**, or the **Fagus factory**, and in the case of the Crystal Palace there are not even any waverers or spoiled papers. Nothing else is so certain as this. The next most certain thing is that hardly anybody loves the **Einstein-turm**, which polled only one vote as a masterpiece, though nearly everybody thought it historically important. The next most doubted building as a masterpiece was the **Glasgow School of Art**, and both these last two results emphasize the general distinction, now almost universally accepted, that a building can be important without being great—a clear demonstration of a relativistic

attitude to history that has hardly existed in architectural circles before.

However, these two last buildings are the extreme cases of wide divergence between historical and aesthetic opinion. By contrast, the two most severely doubted buildings in terms of historical importance, **Notre Dame du Raincy** and the **Robie House**, both produced fairly even voting on their masterpiece rating. The votes also fell evenly—exactly evenly—for the **Crystal Palace** and the **Fagus factory** as masterpieces.

To sum up, then, on the overall statistics: architectural opinion coincides fairly closely with professional historical opinion on the standing of these buildings in terms of historical importance. The biggest divergence here is probably on the subject of the Crystal Palace, which, like the Red House, some historians now seem inclined to regard as the end of something, rather than a beginning, and the Robie House, to which historians clearly attach greater importance than architects do. It is worth noting on this last point that among those who voted the Robie House historically unimportant was someone who was in Holland at the time when historians believe it to have been most influential there.

However, the results that most architects will want to know are how the aesthetic opinions break down between different groups of the profession. The solitary vote for the Einstein-turm came from an architect who is equally a professional historian, and the few votes for the Glasgow School came from the same side, but there seems little further that can be deduced on this point. One might note in passing, however, that buildings are more often disliked by those who have actually seen them, than by those who know

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HISTORY AND PSYCHIATRY: *continued*

defection from Left solidarity was only a part of a more general disintegration of progressive opinion, but it had special consequences for younger architects—they emerged from their Palladian deviations with the habit of listening to the opinions of historians, and some expertise in deciphering their utterances. For this they had been prepared, of course, by fairly long acquaintance with the works of Pevsner and Giedion, but in the post-Palladian phase historians have come to the front as men with a specific and unique contribution to make, and history, as a subject of academic discourse, has acquired a new standing in the world of architectural education.

But the history of modern architecture has also been presented with a new task—that of the revision of the great myths on which the Movement's *esprit de corps* is nourished. Although this extends far enough back to include a re-appraisal of the work of the *Grands Constructeurs* of the nineteenth century, the main task is seen as the elucidation and explanation of the events covered by the Zone of Silence. A generation has grown up that believes—rightly and wrongly—that modern architecture underwent a major crisis somewhere in that period, and that the details have been kept from them. Though they are almost completely wrong in supposing that there has been any deliberate suppression of fact, they are clearly right about the crisis when the missing facts are examined.

Furthermore, the filling-in of the blanks gives meaning and value to contemporary reactions to the crisis. To take an outstandingly difficult case; the work of Gropius in the early Twenties—a degree of embarrassment clearly surrounds his Sommerfeld House, an expressionist log cabin of 1921 that makes patent nonsense of any suppositions of continuity between the Pioneer and Master phases of his work. The general response of the younger generation on first discovering this house has been to suppose it to be the product of (a) a moment of almost psychotic aberration, or (b) craven submission to the importunities of his client.

The filling-in of the surrounding facts, however, demolishes both propositions. The client, though strong-willed, was no fool and retains to this day a lively and sympathetic interest in modern architecture. Nor can an aberration be convincingly propounded—the surrounding facts include, for instance, the exactly contemporary Otte house which makes a smooth transition between the log-cabin aesthetic and modern architecture as commonly understood, since, in it, Gropius uses

them only from the books (and only three of those who replied to the questionnaire actually declined to comment on buildings because they were not known to them at first hand, and two of these nevertheless passed judgment on the Crystal Palace).

The most interesting cases for the analysis of the source of the replies are clearly those where voting was very even, in order to see if this merely represented a random distribution of opinion because no one was very interested, or a division of opinion between two distinct schools of thought. The division that is looked for nowadays is always that between generations—the over-forties and under-forties near enough. This particular discrimination works only for certain buildings, and what emerges is as follows. For the Robie House and Notre Dame du Raincy, the division of opinion seems random, with **as many young and old on either side**. For the Fagus factory there may be a slight margin in its favour among the **older generation**, and more definitely so in the case of the Glasgow School of Art. The two most definite cases are those of the Crystal Palace and the Schröder House. Here, the young are much more likely to dislike the former than are the old, the Palace has definitely lost ground amongst the younger generation. The **Schröder House**, on the other hand, is **liked by the young** more than anybody, and, indeed, those who rate it a masterpiece belong almost exclusively to the Brutalist/Team-X connection.

This last point is one of the most interesting to emerge, because opinion in the profession at large would have expected the Angry Young Men, the assassins of CIAM, to vote heavily for the Einsteinium, as being the most obvious-

ly anti-Establishment building on the list. It now appears, however, that the recent revival of interest in Mendelsohn is in his post-Expressionist architecture, and the revival of interest in the Einsteinium may exist only in the minds of modern-movement historians betting on trends. The high standing of the Schröder House among the young—which is an observable fact and was known to the writer even before the questionnaire was sent out—suggests that the Boys' Revolt is a rather more subtle affair than some suppose, and that it does not represent **so great a break with modern movement traditions** as might be expected. After all, the **Schröder House**, for all its aestheticism and its structural pretences, is a work of the **mainstream**.

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the same over-all form, even to the dormers, in combination with very pure, white-rendered surfaces.

But the surrounding facts also include Expressionist/Dadaist Berlin in political turmoil. Against this George Grosz background, one also perceives Bruno Taut making town-planning projects *à la* Finsterlin, and Hans Scharoun designing blanchmange-shaped office blocks with gothic portals, and Mendelsohn's Einstein tower just completed. And against this background Gropius emerges as what he has always been, a master of rationalism and restraint. One sees why the younger generation demands to be told 'all the facts on modern architecture.'

Now, if Expressionist Berlin does so much to give sense and context to the Sommerfeld house, it does quite a lot, still, in the same way for the Bauhaus buildings in Dessau, designed only four years later by a man who was still Walter Gropius, and—with suitable dilutions—this applies also to buildings he designed later still, such as the Siemensstadt flats, and to experiences he had undergone earlier, such as working with Peter Behrens. Our view of Gropius is impoverished out of all proportion to the number of facts involved if any part of his career is omitted from the account.

The same is true of the career of any other master, and since those careers add up—or rather, multiply together—to form the Modern Movement, our view of the movement is disproportionately impoverished by those parts of their careers that have been swallowed by the Zone of Silence. In fact, the situation is worse than that, the silence covers *whole* careers—Mart Stam's for instance—writings, such as Paul Scheerbart's—and movements, such as Elementarism. But since this period, these movements and ideas were those in which Modern Architecture as we know it was created, those members of that movement who could not be present at the time, because they were not yet born or were in Finland or Brazil, are in ignorance of their own origins. The urgency of the demands to know 'What really happened in Modern Architecture,' to be apprised of every discoverable fact, to have every accepted valuation checked and every movement, however obscure, shaken out for any original ideas it contains—the urgency of all this, which is the consumer-pressure on the producers of historical writing, is the urgency to know 'How did I get this way?' History, considered under this light is not, in Alan Colquhoun's telling phrase about Giedion, 'The quest for respectable grandfathers,' but a psychiatric enquiry into the springs of action, the grounds of inhibition.

If the older historical dispensation approaches the evidence much as a herald might approach a family tree, to see what glorious bearings may be quartered into the blazons of Modern architecture, the new historiography puts the movement on the couch and asks embarrassing questions. A father-figure like Auguste Perret who appears as a scion of a noble line of classicists on one count, may appear as a structural pervert on the other; an influence like Mondrian, whom the 'official'

view may see as an exemplar of simplicity and purity, may be seen from the other side as a man in the grip of an almost catatonic fixation, unable to do anything but repeat the same image over and over again. However, the psychiatric simile cannot be pursued too far in detail—though it remains overwhelmingly true in general. The confirmation comes most aptly in a phrase used to describe the passionate interest in the content of the Zone of Silence, viz. 'Using facts to pervert the history of the Modern Movement.'

Against accusations like the last—which are perfectly true if one inserts such a word as 'accepted' in front of 'history'—the new-style historian needs a double armour. Firstly, because his main sources will be the public or private utterances of men still alive, he needs a diplomatic talent that will enable him to break confidences without giving offence. The historian who persistently accedes to demands for decent silence will sooner or later lose the respect of his readers. But, even more important than the ability to spill secrets inoffensively, is the ground on which he decides to spill them. His integrity as an historian must be beyond question, and this, under present circumstances, means that the amateur historian, the historian with architectural connections, is out. It is very noticeable that the prestige of Sir John Summerson's utterances about modern English architecture has gone up since he ceased to be an apologist for the English Modern Movement and that the big question-mark about Sigfried Giedion is still his involvement with his subject matter as secretary of CIAM.

The one secure ground on which an architectural historian can stand is outside architecture. Since he cannot be an architect, his professional qualification must be as an historian, since he cannot get by without some professional qualification that an architect can trust. He is now regarded more and more as a sort of specialist consultant, like an acousticist or a traffic engineer, and is expected to tell the truth even if it hurts. But he cannot get away with this unless he stands firmly on a professional qualification that proves his grounding in an orderly method, that proves an objective attitude towards the evidence.

Obviously, this does not rule out the amateur contribution, particularly in field-work—the enthusiast who is prepared to work through *Bottin* in search of early houses by Lurçat, or swings his camera on to a factory in Krefeld on the off-chance that it may be Mies van der Rohe; the self-appointed commandos who storm doors in Hollywood in the hope of seeing interiors from Frank Lloyd Wright's concrete block period, or stir the dust in Italian museums in pursuit of ground-plans by Sant'Elia. These men—who are also a phenomenon of the new history—are the prospectors and surveyors who fill in the blanks on the map, but the final drawing of the map, and the indication of the areas that still need further field-work, these need the authority of a trained professional mind that the field workers can trust; therefore, preferably, a professional with some field-work behind him, like Theodore M. Brown, the author of the recent book on that highly symptomatic figure from the Zone of Silence, G. T. Rietveld.

The position remains, in any case, that the appointment of historians to a cure of souls, to the guardianship of the conscience, even the sanity, of the profession, places upon their shoulders a responsibility that they have not been asked to carry before. Nor is this likely to be a passing phase—the detachment of architecture from its grand traditions, extending from the Pyramids to the Crystal Palace, has clearly been broken for good, it cannot hope to regain its Vitruvian innocence. Without the ballast of an equivalent millennial tradition, architecture will have to be consciously trimmed and steered as it proceeds, and someone will have to plot its course continually. That someone is the historian: it is not for him to give orders or indicate destinations, but his plot of the track to date must be accurate. The most difficult and embarrassing part of this new task will be to pass judgment on the tendency that so much disturbs the older historians of modern architecture—the tendency to modern-movement revivalism (discussed in 1960/1/iv-vi). Although this tendency affects mostly the younger historians' own contemporaries it also touches some of the Masters, and requires him to say how far the curved forms of, say, Ronchamp are to be regarded as conscious revivals of Gaudi or early Mendelsohn (hardly at all in the present writer's opinion) just as much as he is required to pass judgment on the revivals of the Dutch 1920's to be seen in some aspects of Neoliberty, and in different aspects of Team X projects (in both cases fairly conscious and deliberate).

But to revert to the psychiatric simile, his diagnosis must be as nearly infallible as is humanly possible, and to achieve this he must be as nearly objective as is humanly possible, and as reliably skilled in interpretation as is humanly possible. The responsibility that awaits him is not a light one.



1

Staff Club and Students' Canteen, University of Edinburgh

architects : Basil Spence and Partners

The conversion involved the gutting, bar the floor-structures, of the whole of three old properties and part of an adjoining one, on a site fronting to Chambers Street, Edinburgh. Some of the property was already occupied by university departments, and one of these is to remain (thus accounting for the greater part of the blank areas on the plans, over page). The accommodation to be provided for the staff club and the students' refectory was extensive and varied, including—besides the rooms illustrated on this and subsequent pages—squash courts, and other sports facilities, a steward's flat and kitchens to supply both the staff dining rooms and the refectory. 1. exposed masonry walls in the students' refectory area. The main

visible survival of the original structures lies in the masonry of the party-walls and main structural cross-walls, which, in several rooms, has been simply made good and left exposed, or made good and painted, as in the case of the nearer wall in this view from the upper level of the students' refectory, across the entrance lobby, into the students' lounge beyond. Immediately beyond the painted wall are steps down from the lobby into the lower refectory, right. The piercing of these massive masonry walls in this manner, for access, circulation, or simply for internal vistas, creates an air of spaciousness in spite of the inevitably close and boxy structure of old Edinburgh terrace-houses of this kind.

ID

*a monthly review
of interior design*

Staff club and canteen, Edinburgh



2



3



4

2. and 5 (below) the main staircase, staff side, rising from the entrance-lounge to the first-floor dining rooms; stair carpet designed by the architects. 3. view from the entrance to the bar, towards the main ground-floor entrance; telephone booths flank the lobby, and a small lounge can be seen beyond.

4. the bar on the ground floor; the side walls planked in African hardwood, the bar front quilted in tartan cloth. The apparent depth of the bar area is increased by the perspective effect of the converging walls (see plan, opposite).

6. the smoking-lounge on the second floor, with the exposed masonry of the structural party wall. The floor here, as in many parts of the staff side, has been relaid with hard-wood strips.

7. the main staff dining room, waitress-service side. The wall at the far end of the room is destined for a large mural by Leonard Rosoman.

8. the sideboard, in an alcove between the service doors of the staff dining room (just visible on the right in 7). The alcove, panelled in hard-wood veneers in contrast to the papered and plastered finishes in the rest of the dining room area, also serves to accommodate heating and ventilating grilles.



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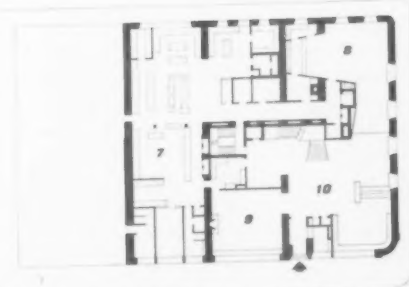
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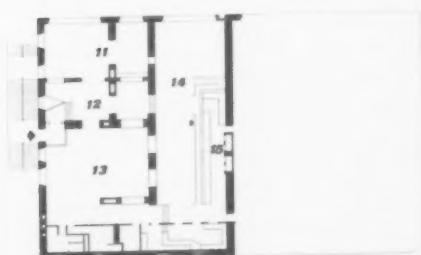
second floor



first floor



50 40 20 0 10
ground floor



basement

- key
1. committee room
 2. smoking lounge
 3. library-writing room
 4. private dining room
 5. self-service dining (staff)
 6. main dining room (staff)
 7. kitchens
 8. bar
 9. square lounge
 10. main lounge
 11. student lounge area
 12. entrance lobby from stairs
 13. upper dining area (students)
 14. lower dining area (students)
 15. service counter



8

Staff club and canteen, Edinburgh



9



10

9, part of the ceiling in the upper students' refectory (also visible in 1, page 333). Throughout most of the student side, where budget limitations were extremely stringent, finishes are very simple; floors are of black and white linoleum squares, and the ceilings are normally of painted acoustic tiles. In this corner of the upper refectory, however, the ceiling has been lowered and pine planked, with peripheral lighting concealed above the edge of the planking, and inset fixtures for direct lighting, instead of the cylindrical black pendent units used throughout the rest of this area.

10, main party wall flanking the lower students' refectory. The difference in levels between the two refectories (corresponding to the slope of the street outside) may be appreciated by comparing the cill-heights here and in illustration 1; these first two holes in the wall being purely for view and increased sense of space, the third containing the steps down from the entrance lobby seen in 1. A further hole-in-the-wall lies beyond the steps and can be seen on the plan (previous page), though not in this photograph. This gives a view into the students' lounge, and the four openings provide a series of views out of the lower dining room in order to counter any sense of excessive narrowness and length in the room.



Ergonomics versus styling

The exhibition of US design students' work which was shown recently at the USIS gallery in London was not new, it had done yeoman service in many countries before it reached Britain. But its age (just over two years, which is a long time in design nowadays) and the anonymity of its presentation, with none of the exhibits credited to individual students, made it a useful object lesson on the progress of the supposed war between ergonomics (or function) and styling (or aesthetics).

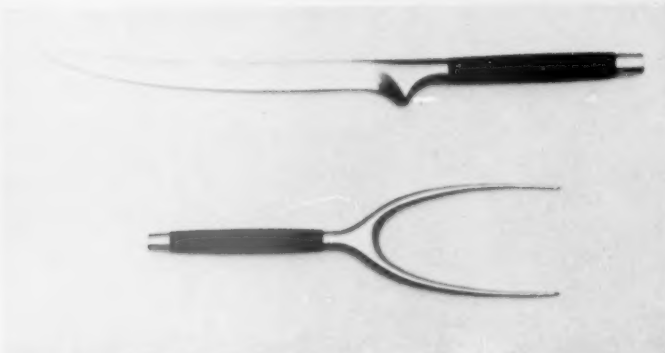
The stylist quality of some of the pieces was clear enough:

1, the project for a powered mincer, though doubtless entirely functional, clearly belongs somewhere between science fiction and Charles Eames in its inspiration—fitted with its hopper, which is not shown in this illustration, it looked more Eames and less fictional.

DR
design review



2, a powered hand-drill, owing much more to the international 'Gute Form' aesthetic, though its chrome nose-ring gives it an American accent. Here the aesthetic preoccupation is clearer, and—whatever may have been gained formally—there seems no good reason in a tool as small as this to depart from the normal, and handy, practice of putting the hand-hold below the axis of the drill, in the form of a pistol-grip.



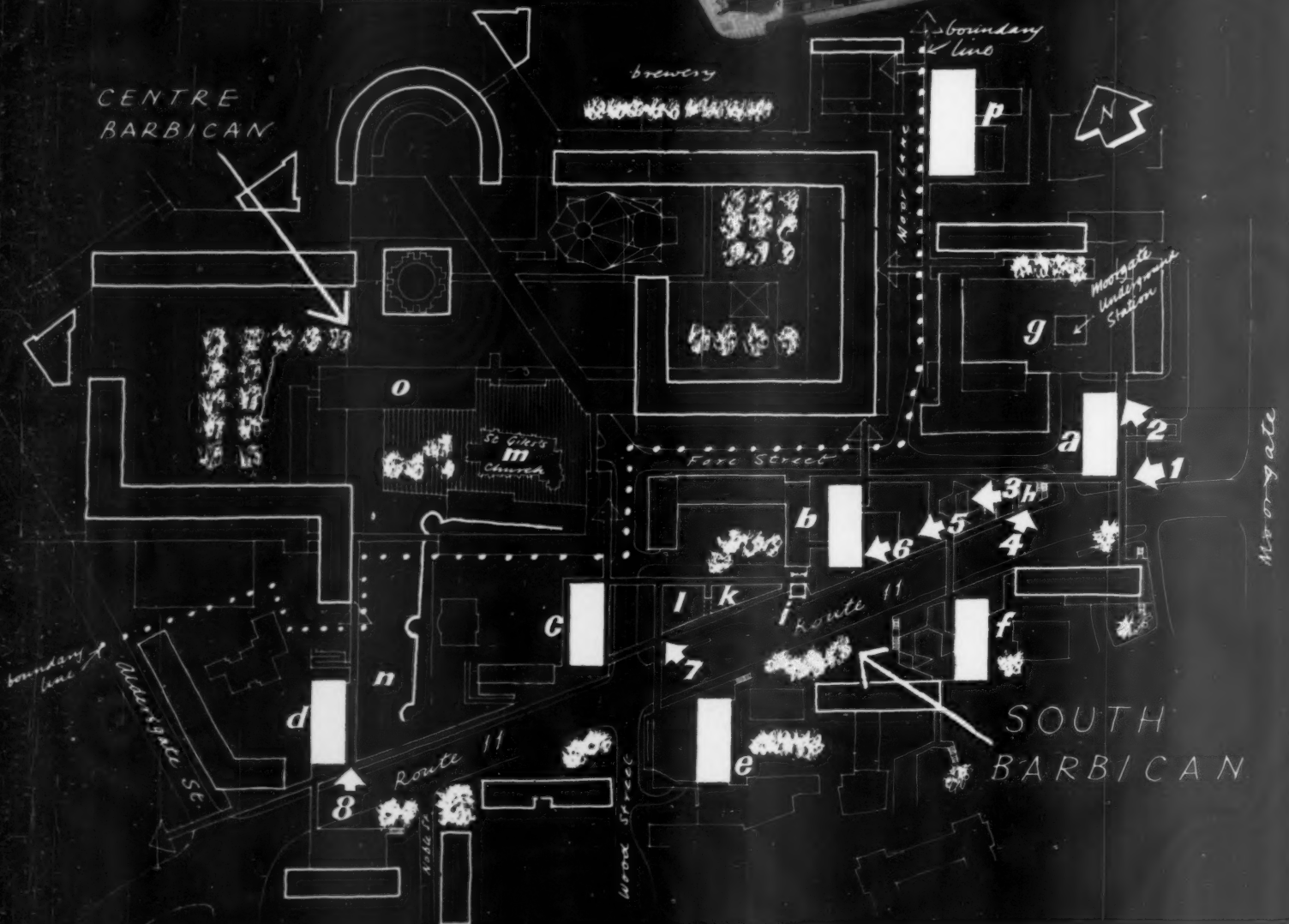
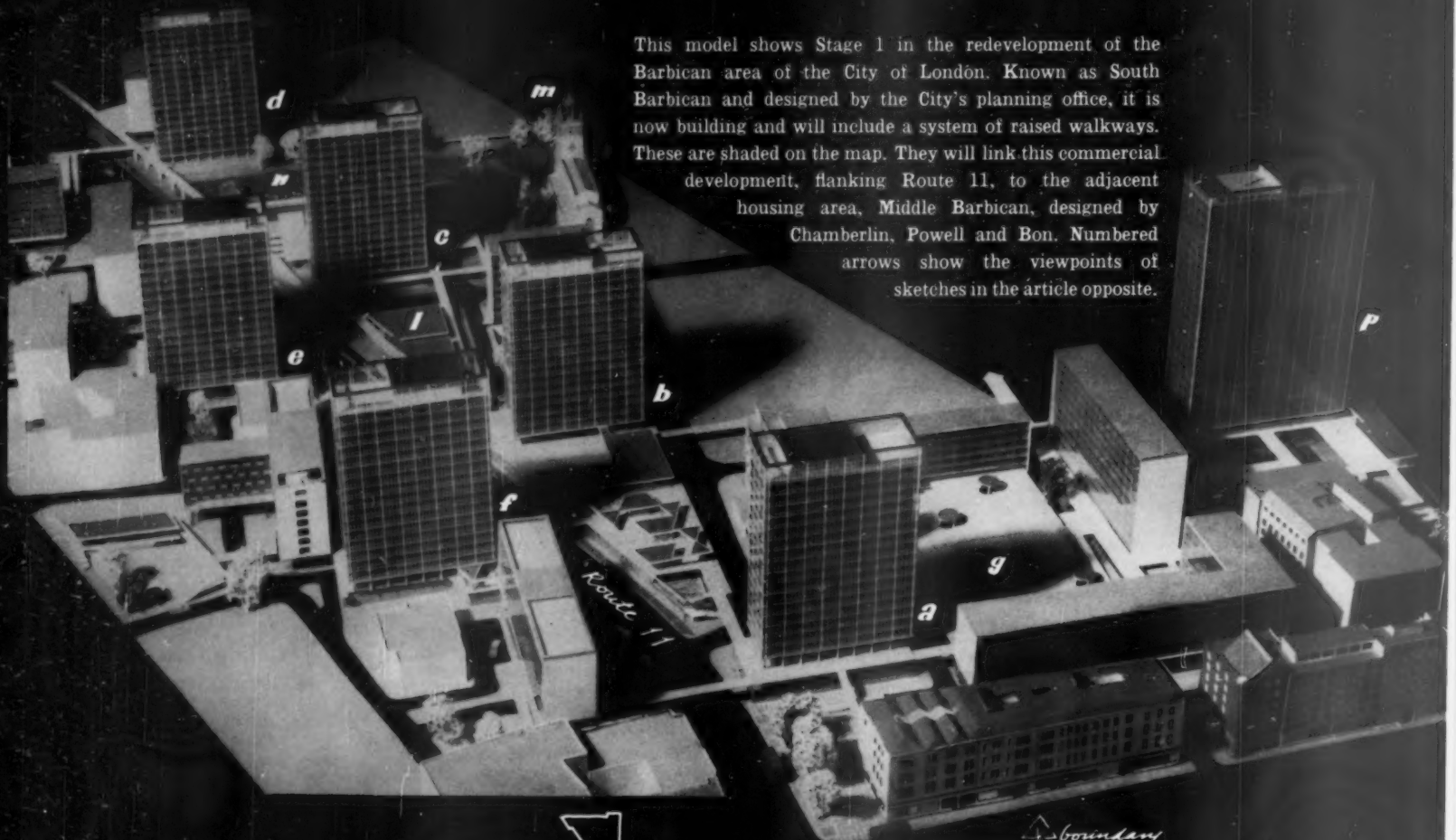
3, when ergonomics collides with free-form sculptural aesthetics, however, it becomes very difficult to make the theorists' normally clear-cut distinction between honest attention to function, and eye-catching indulgence in styling. These carvers have the air of having been shaped to the hand by the same sort of anonymous process that has created the traditional forms of craft tools—until one tries to imagine the consequences of actually using the lower object as a carving fork.

4, these ski-stick handles, however, pure sculpture at first sight, become equally purely ergonomic as soon as one imagines one's left hand sliding comfortably into the curves and notches of the handle shown sideways on.

5, prototypes for screwdrivers, which sum up the argument by showing the variety of forms that the solution of a simple ergonomic problem can take. Without actually handling such an implement, one cannot be sure of its functional qualities, but it would be a poor school that let its students design unworkable products. Assuming all to be equally functional, then, one can still distinguish between them stylistically—traditionally classic on the left, ergonomic-sculptural (vintage very clearly mid-1950's) on the right, with what appears to be routine-commercial, and Bauhaus-revival next to it, bottom centre. Moral, you can no longer assess the performance of an object from its style.



This model shows Stage 1 in the redevelopment of the Barbican area of the City of London. Known as South Barbican and designed by the City's planning office, it is now building and will include a system of raised walkways. These are shaded on the map. They will link this commercial development, flanking Route 11, to the adjacent housing area, Middle Barbican, designed by Chamberlin, Powell and Bon. Numbered arrows show the viewpoints of sketches in the article opposite.



Kenneth Browne

SOUTH BARBICAN

The City of London's first essay in pedestrian segregation

The publicity received by Chamberlin, Powell & Bon's scheme for the residential area of the Barbican has tended to obscure the fact that it is part of a larger scheme for the Barbican Area covering 63 acres (see map below). This is divided into three sectors, North, Centre and South. The North Sector, 10 acres of mixed development, is also being designed by Chamberlin, Powell & Bon in conjunction with the City of London's Planning Department and the design is still tentative. The Centre Sector, 25 acres of residential development, is the well-known scheme by the same architects on which it is hoped to start preliminary work next year. However, it is the little-known South Sector, consisting of 28 acres of commercial development, with which we are concerned here. The overall scheme, shown in the model opposite, has been designed by the civic design section of the City's own planning department, in conjunction with the LCC, and the buildings will be worked out in detail by the architects for the prospective building owners.

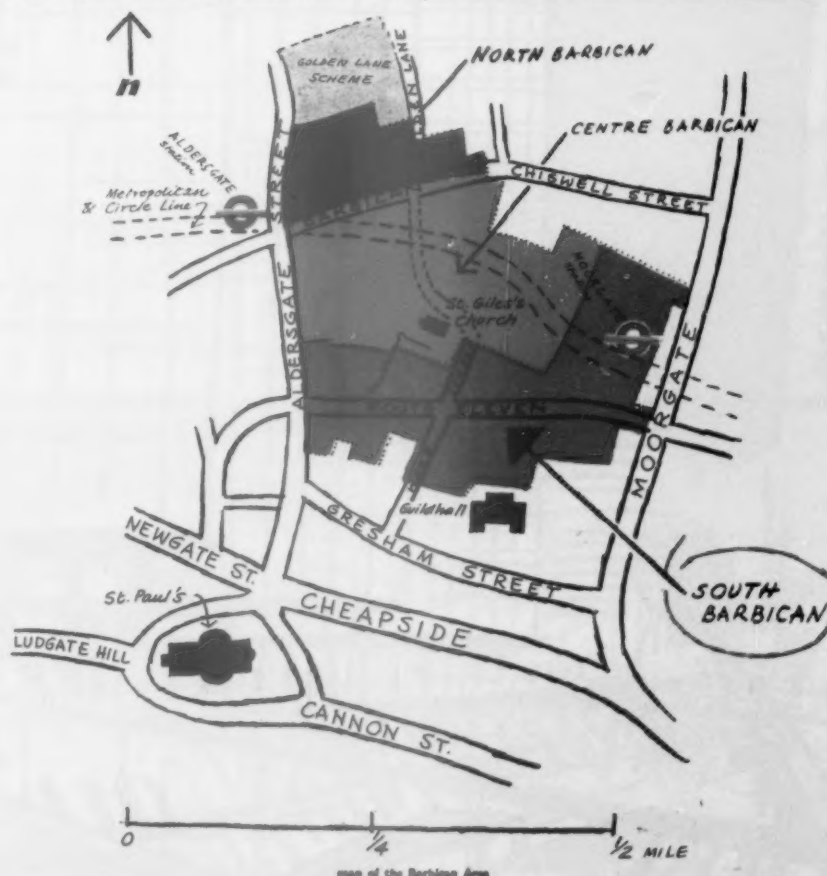
The first thing which strikes one is that despite the City's bad reputation for post-war building, this looks a surprisingly promising scheme. The second is that it is actually building now, and one tall block, *a*, on facing page is, in fact, already up. This is not just the usual permitted density/light angle/desirable use diagram which it is vaguely hoped will produce architecture, but a true three-dimensional civic plan. What is more, the developers' architects are being made to toe the line and keep to this plan to an unheard of degree. This is made possible by the fact that the city is not only the planning authority but also the landowner.

In essence South Barbican consists of six 220 ft. high office blocks of identical size and shape, regularly spaced on either side of

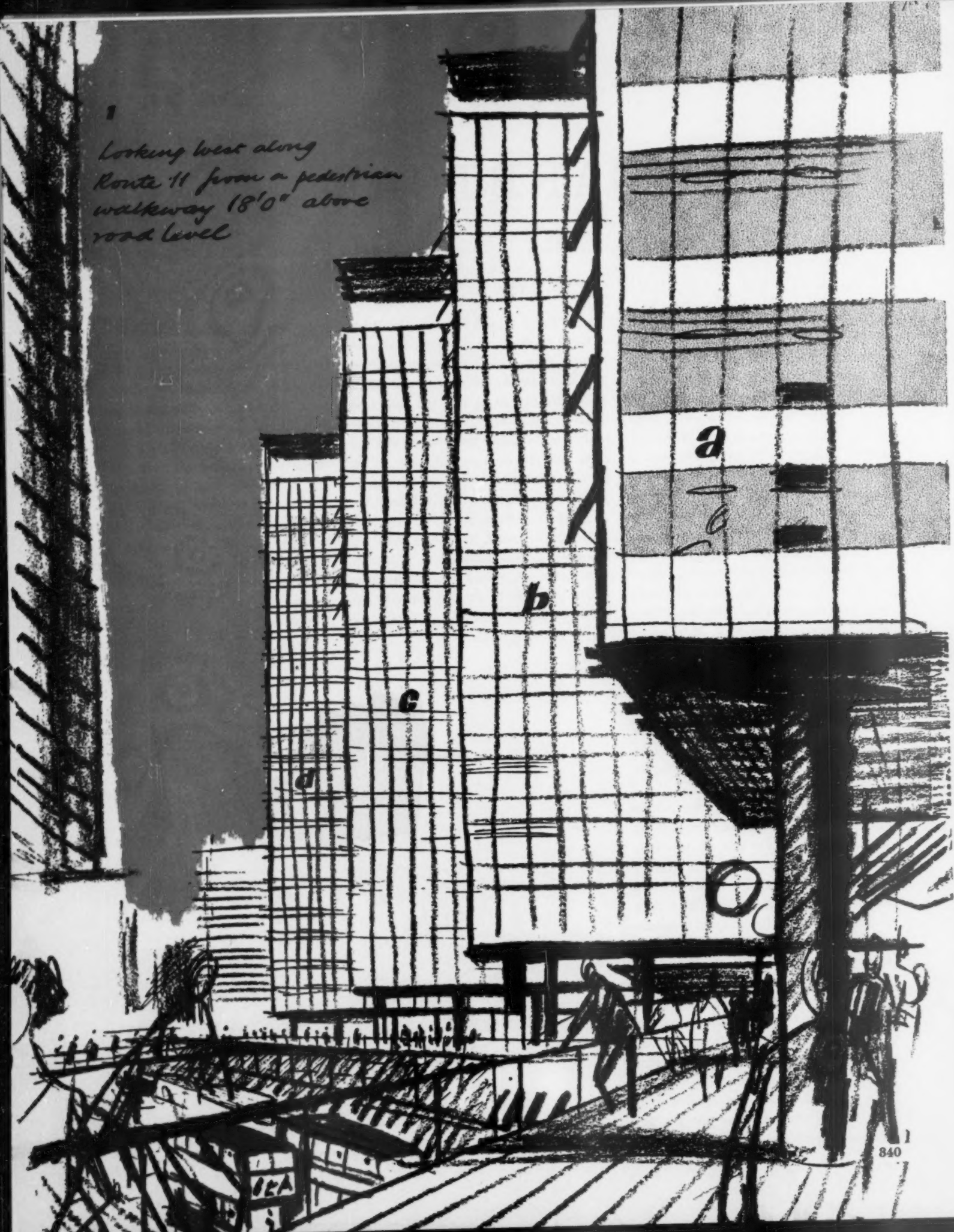
the new Route 11, and an even higher block of 380 ft. to the north which dominates the scheme. Both South and Centre Barbican have Wood Street as the axis and the 220 ft. blocks are parallel to this and angled to Route 11. They rise from a 1 or 2 storey podium of shops and lower offices with car parks and servicing below. However, by far the most interesting feature of the scheme is that here at last a real attempt is being made to solve the vehicle/pedestrian problem. At the podium height, 18 ft. above road level, the whole area is traversed by pedestrian walkways which not only link all the office blocks but link the entire scheme to the adjacent residential area. Shops, pubs, cafes

and offices will all have their entrances at this level, with service access below. Escalators from Moorgate underground station will deliver office workers to a piazza at the 18 ft. level and they will cross all roads by bridges to their offices without at any time being in the same plane as the traffic. Four bridges will span Route 11 itself, and there will be no pedestrian access to buildings along it at ground level.

During the lunch-hour, office workers will be able to relax on terraces and in cafes and restaurants provided at this upper level. There will be open spaces, traffic-free, particularly by the old Roman wall. Wherever possible an intermediate (10 ft.)



1
*Looking west along
Route 11 from a pedestrian
walkway 18'0" above
road level*



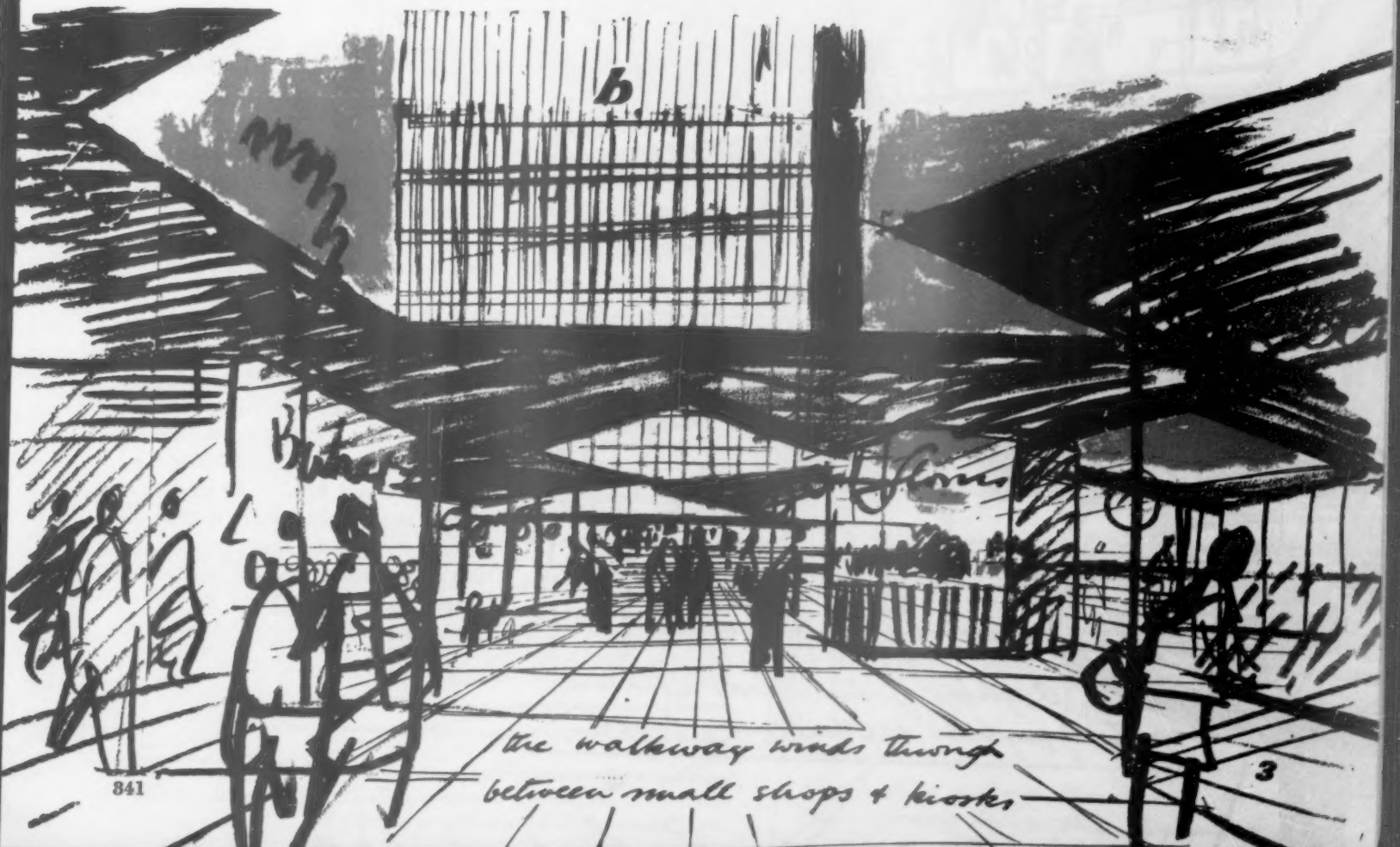
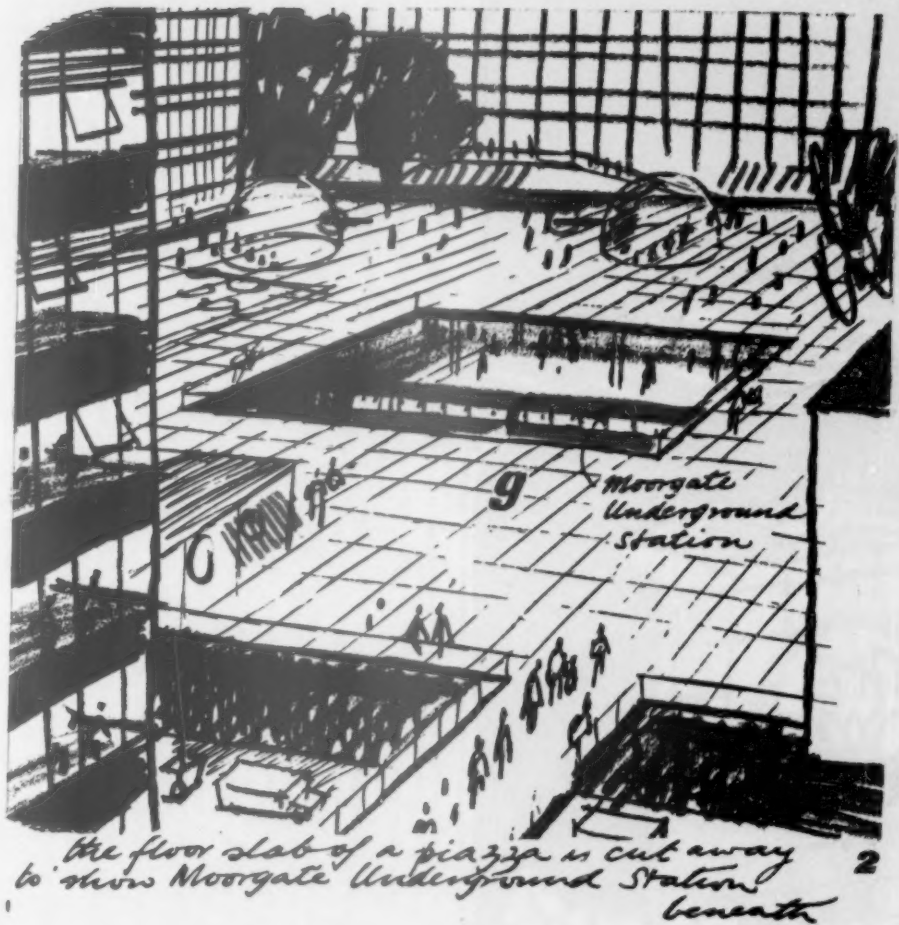
level is introduced which not only forms a rest landing for people climbing from the lower level but will accommodate kiosks, shops, etc. When this scheme is built it will be unique, for though many such exercises in pedestrian segregation have been put forward, nothing on this scale has actually been realized in Britain.

The sketches accompanying this article are an attempt to visualize what it will be like to stroll round South Barbican on the walkways shown in the model on page 338.

If we start by crossing Route 11 by one of the four bridges and look west, 1, we shall see the 220 ft. office blocks standing in line and the walkway passing beneath them. Block *a* is already complete except for its bridges and ramps, for which structural provision has been made.

Diverting northwards for a moment, 2, we come to a piazza which will be formed over the rebuilt Moorgate underground station. The centre of the piazza is cut away to show the movement of trains below. Plastic domes protect the escalator entrances, and cafes and shops surround the square.

Retracing our steps and going farther west,



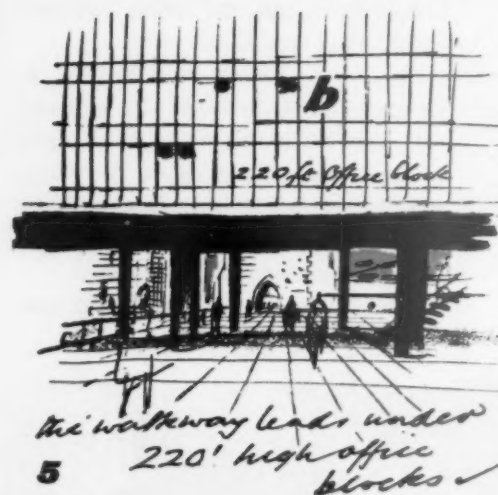


3, the walkway winds through an informal and partially roofed market of small shops and kiosks at the entrance to which steps lead down to a pub, 4, at the halfway level.

After leaving the shops, the pedestrian platform, as it is now, stretches under office block b, and beyond it, 5, can be seen the ruin of St. Alphage's church, which is to be retained and makes an interesting contrast to the severity of the modern buildings.

The way leads through the ruin, 6, and beyond it is an arcade of shops k, with the third high block, c, rising up sheer beyond.

Still at the same 18 ft. level we come to another pub and restaurant 7, and can see St. Giles's, Cripplegate, framed between it and



the next office block, c. At this point a ramp leads down to open space at ground level but carrying on along the side of Route 11 as far as the last tall block, d. Turning north we see St. Giles's again, this time with the roman city wall in the foreground, e. Here again ramps lead down, this time to a grassed park f, at the foot of the walls with a canal beyond. To the left one of the pedestrian ways leads on to the residential area of Centre Barbican. The new City of London school for girls is seen in the background, g.

These are only some of the visual possibilities of the scheme and if it fulfils the promise of the model, it will, together with that of Chamberlin, Powell & Bon, at last produce something of which the City of London can be proud.



6 & then through the ruined church of St Alphege to an arcade of shops



7 then past a restaurant with St Giles's church beyond

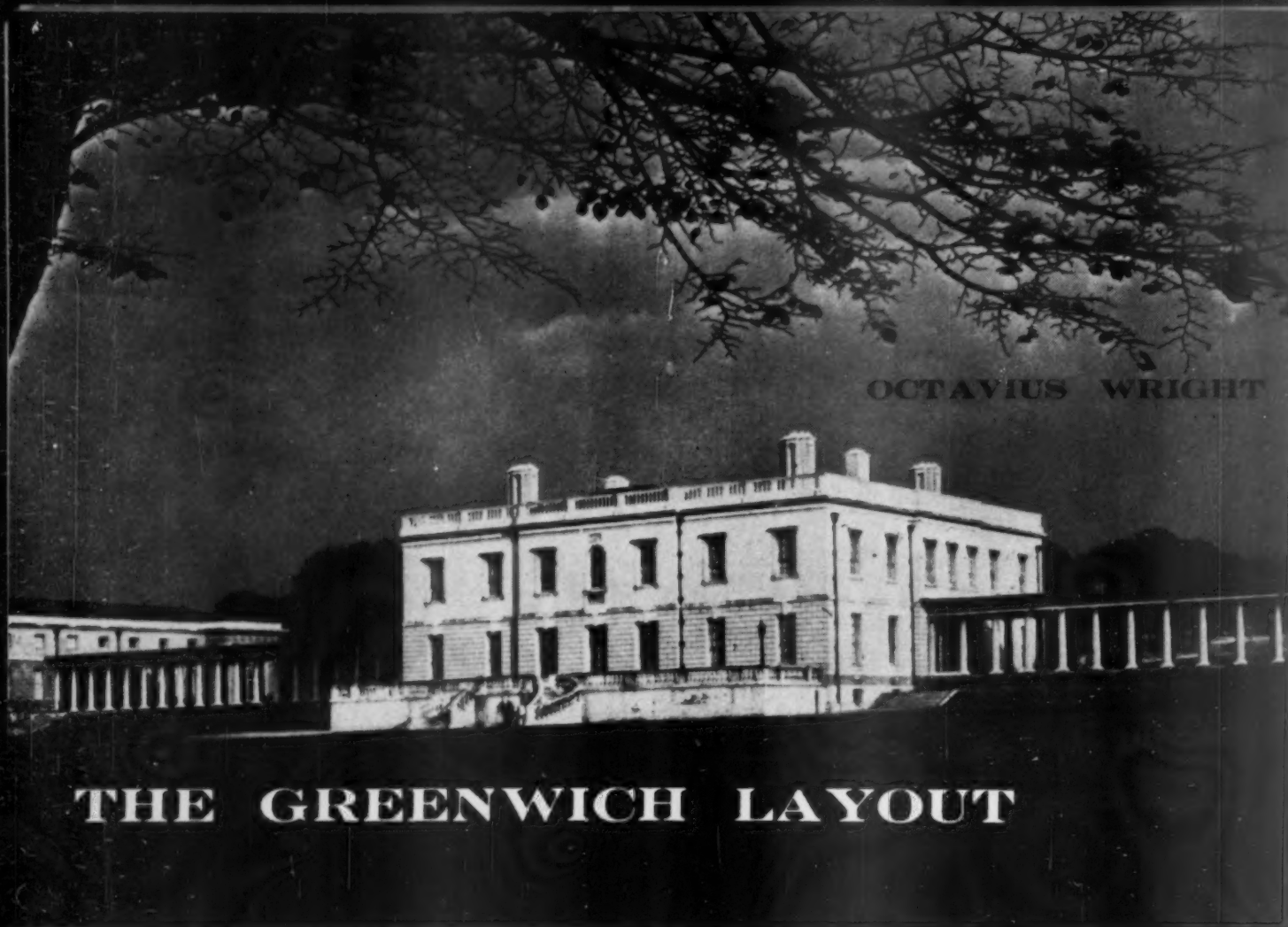


8 & further along there is a grained open space below the Roman wall.

However, one grave doubt rests in one's mind: bad design of the walkways, bridges, steps, ramps and attendant street furniture—not strictly architecture but quite as important—could so easily ruin what looks very promising in the small scale of a model. The City's taste in such things in the past has been lamentable in the extreme as witness the new street lamps along Route 11, below. It will take very sensitive designers to produce solutions to rank with the German example shown as the frontispiece to this issue, page 300. But that is the standard we must have. This first British contribution could still be wrecked by clumsy hands.



new street lamp on Route 11



THE GREENWICH LAYOUT

The layout of the Royal Naval Hospital at Greenwich is one of the grandest Baroque plans in Britain—yet generations of architectural historians have felt compelled to note that the Queen's House, by Inigo Jones, is something of an anomaly in the scheme. In the article below, Octavius Wright adduces the evidence for supposing that Wren and his contemporaries, to whom the final plan is usually credited, were following out the lines of a project by Jones, based on a larger version of the Queen's House that was never completed.

It is customary to attribute the grand layout of the Royal Buildings at Greenwich to Sir Christopher Wren, but the examination of their site and the buildings as now existing, and the consideration of available plans and documents, suggest that it may be more correct to conclude that the layout was originally conceived by Inigo Jones. It is also customary to regard the additions of corner pavilions to the Queen's House as an idea of John Webb, Inigo Jones's assistant and kinsman. They were begun in 1668 and abandoned and covered over in 1669.* There are good reasons to assume that these pavilions also were originally planned by Inigo Jones. Three reasons may here be introduced at once:

(i) There is a Jones drawing showing pavilions, 1. (Burlington-Devonshire Collection.)
(ii) The east and west roof parapets are not at present balus-

traded. Jones made economic provisions for the accommodation of the pavilions. Had he placed balusters on the inside walls of the waist of the H-plan Webb would have made use of them in the finishing of his bridges.

(iii) The terrace engages the whole of the north façade but 2½ feet at either end—an obvious provision for pavilions to be added by the extension of the east and west walls. The present proportion of the terrace to the whole façade is unquestionably displeasing. Had pavilions not been suggested the terrace should have been extended to a brief return southwards, or contracted to customary proportion. (The width of the terrace and the span of the medial bridge are each 1½ perches.)

The conclusions to which this article is going to proceed are based on the assumption that the pavilions were planned by Jones. If they were not, then the grand design of Greenwich need not be his either. Once the pavilions are

accepted the following facts assume significance:

(a) The Queen's House with the pavilions lies in a three-chain square.

(b) The length of the Painted Hall is also three chains.

(c) The sets of the points PMC and PWR are each co-linear.

(d) The pavilioned house, together with the four other blocks, compose a geometrical plan-design worthy of Jones.

(a) above, has in common with the Queen's House cube room the squareness which typifies Jones's plans. (b) can hardly be accidental. It was indeed usual for Jones to plan on paper scribed or scored in squares of applicable units, and Jones believed in 'three-ness' altogether, as a symbol of the Trinity. Alberti was Jones's predecessor in faith in ratios of small numbers. Jones had read himself deeply into Alberti. The whole of the grand Greenwich layout is in 'three-ness,' as 3, shows.

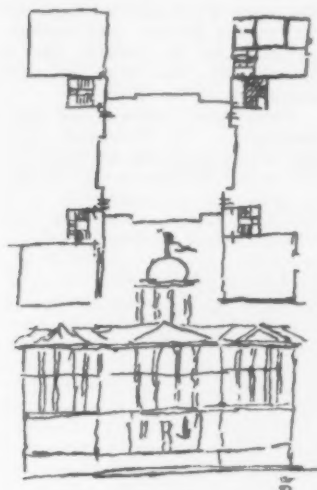
As for, 3, it is professional

stagecraft showing the usual scenic lines. On this more anon. (d) has the dignity and the simplicity which we note for instance in the elevation of the west front of St. Paul's, Covent Garden.

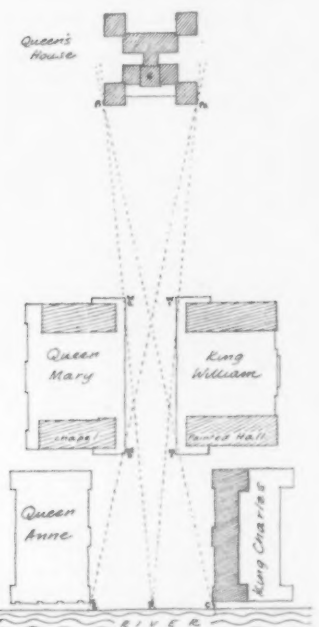
It is not likely that Webb would have launched out on so bold and so logical a layout without the urge and inspiration he had acquired from his master in the privacy of the Whitehall office. The only material we can hope to find to confirm or confute the hypothesis here set out would be in the nature of notes rather than explicit explanations and statements. These would reveal the master's conception of the buildings that were to arise.

There is however yet another argument, again admittedly hypothetical, but again with probability on its side. Consider Jones's theatrical experience. The Thames was the royal highway to the Palace. This fact automatically provided the circumstances that produced the essential

* See G. H. Chettle: *The Queen's House*, 1937, Plate 13.



1, Inigo Jones's sketch, with pavilions.

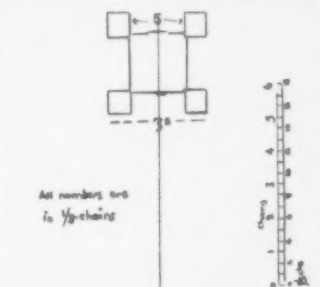


2, scenic relationship of the Queen's House and the other four blocks.

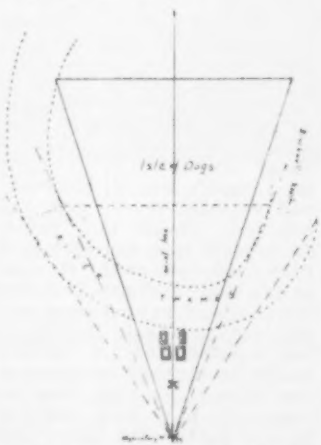
elements of the drama, namely the spectator and the stage. So it was that Jones was quick to seize upon the obvious fact which doubtless, when arriving at the river-stairs, and the scene before him, defined in his mind another stage for a royal masque (v. *Salmacida Spolia*), 5. From 1605 to 1613 he staged eight of them. During this period there are no authenticated architectural works to his credit. There are extant over 450 of his designs of costumes and scenery. More than sixteen of his masques are recorded from 1622-40. After the Jonson quarrel the name of Jones appeared above all others in title-pages of the masques owing to his unique inventiveness and his aesthetic sense of the spectacle which gave lustre to every act and scene. No man of this order could ignore such an opportunity of producing in the grand manner a theatrical

setting on this royal Thames-side plot. Nature provided a unique backcloth and the pavilioned house of the Queen was ordained to be the focal point. The scenic lines fulfilled their part and the grand plan-design was evolved.

The axial line of symmetry of the House shows, on being continued northwards, a remarkable equipoise of the Isle of Dogs, 4. Jones, if the grand design is his, disregarded the general disposition of the old Palace buildings and river-line, and created a re-orientation by which the two silvery reaches of the Thames assumed a fresh aspect of symmetry from Humphrey's hill and from the piano nobile windows of



3, the ratios of the design incorporating the pavilions.



4, the relationship of Greenwich with the Isle of Dogs.

the house. This change was wisely purposeful for the future.

Sir Henry Wotton, in the discussion on 'The Seat and the Work' in his *Elements of Architecture*, said 'the precepts thereunto belonging do either concern



5, a design by Inigo Jones for the Royal Masque, Salmacida Spolia.

the "Total Posture" or the placing of the parts—some may be optical as concern the properties of a well-chosen "Prospect"—yet in the seating builders should be as circumspect as wooers.' Wotton was in Venice in 1604-10. Jones may have visited Italy a second time in 1605, and on that occasion could have gained much wisdom in cultural matters from this great scholar. He later on referred frequently to him in the margins of his copy of Palladio's *I quattro Libri dell'Architettura*.

On the strength of the arguments so far adduced, it should now be possible to be a little more general. Three further points may help the case:

(i) Sir Roger Pratt said that the only remarkable buildings in England were the Banqueting House and the portico of St. Paul's. Webb, in his inscription on the master's monument, notes only the Banqueting House and again the portico of St. Paul's. They both must have realized that the Queen's House was incomplete without the pavilions and therefore preferred to be silent about it.

(ii) Mr. A. T. Bolton writes: 'It has always been evident that Wren's work contains elements alien to his style.' In *Parentalia* we read: 'Father kept his ambitious projects subservient to the existing buildings of Jones and Webb.' Sir John Summerson in *Architecture in Britain* writes regarding the Queen's House: 'This old building of Jones was something of an embarrassment to the Greenwich planners.' In these three extracts one notes a common factor of disturbance. Had the pavilions been built, the composition could at once have fallen into place.

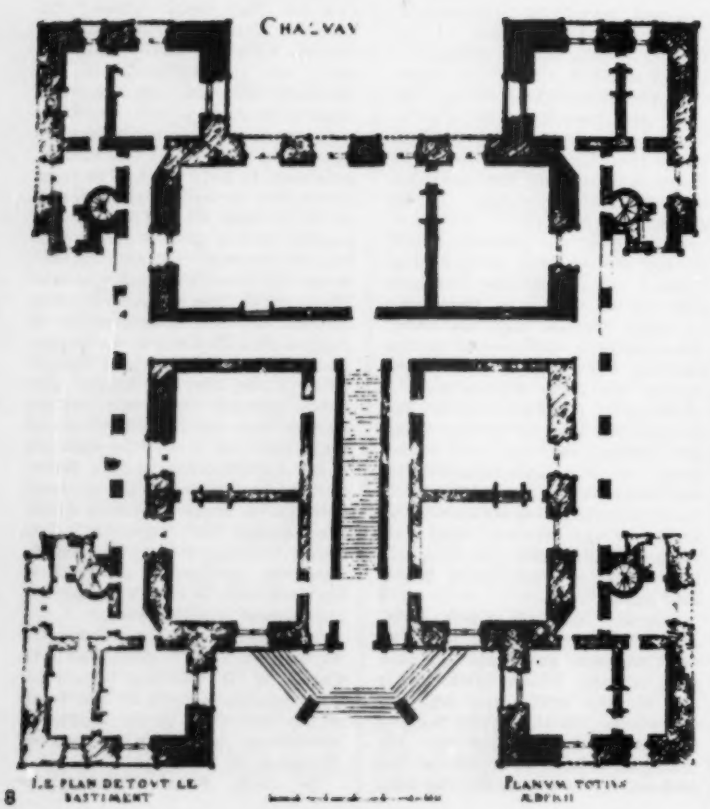
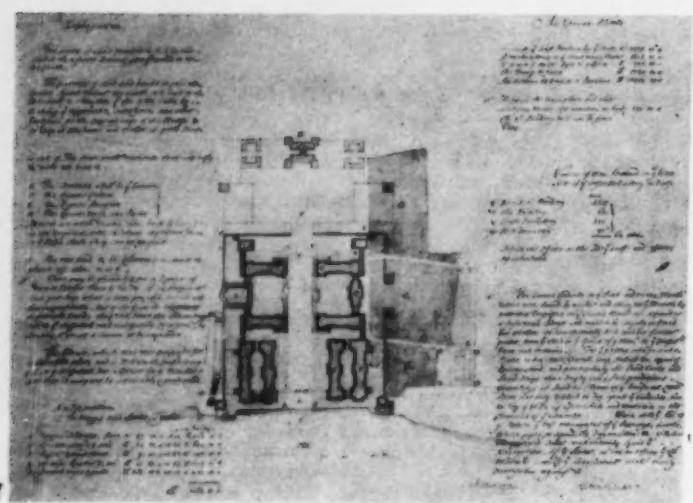
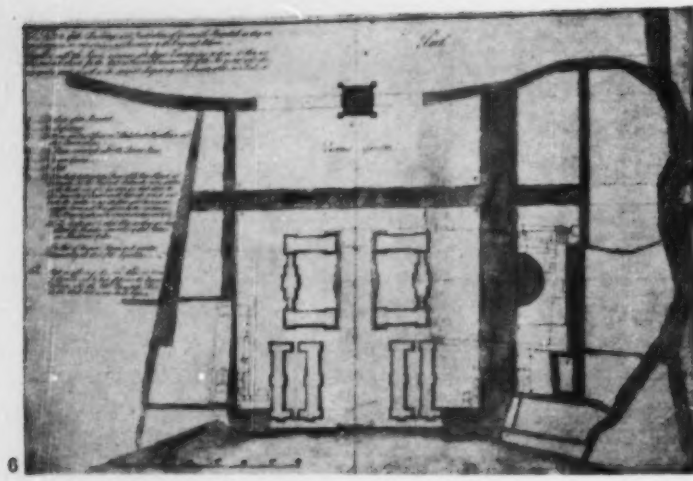
(iii) The sets of points PMC and PWR are co-linear only on an Ordnance map and on one plan at the RIBA (Drawer 5, No. 8). The reader can refer to the volume of the Wren Society and test Hawksmoor in his 'Pamphlet' plan of 1728 for the co-linearity of PWR. He can also

test PWR in the plans on plate XIII of the Wren Society, 6. Those who doubt Jones's intention to introduce pavilions must find it difficult to explain why architects of distinction drew them in their plans so late as these years. Would their omission have meant a violation of respect for the great master? The awaiting for bonding purposes of the terrace balustrade to the extended pavilions walls might explain their persistent appearance. The plan on plate XIV in the Wren Society, 7, on the other hand, shows the points not co-linear and thereby indicates that Jones's purpose was unknown to the architect who drew it.

Many sources have been suggested from which Jones's mind evolved the form which the Queen's House was destined to assume. They are mainly Italian—most are unpavilioned. If the pavilions are accepted, the plan nearest to Jones's with pavilions is shown in du Cerceau's engravings of the château at Châlvaux, 8, published in 1576-9. A plan from which two elevations are given is of the H-form. It is divided by a passage in the greater part of it, but not entirely as is the Queen's House by the Woolwich passage. The centre roof turret is very similar. It is not unreasonable to suggest that du Cerceau's volumes were acquired for the King's library, and that the Queen and Jones perused them together in consultation for the future planning; and that it was the Queen's desire for originality which determined the passage of a road through the house. The text which accompanies the engravings describes the views from the castle windows as showing a canal, a hill and deer in the woodland—reminiscent of Greenwich.

The book of du Cerceau's engravings was dedicated to Catherine de Médicis, who took considerable interest in the work of her architects to the extent of interfering with the designs of the great de l'Orme.

In 1848 Peter Cunningham



published a Life of Jones. He states that at his death 'Whitehall was left unfinished; Greenwich was a mere fragment of a larger design.' In his recent book on the Banqueting House Dr. Per Palme says: 'In planning the coercive power of the axis is at work.' This power was at work at Greenwich. It was strong enough to compel Webb and Wren to accept the line of equipoise over the Isle of Dogs. Quoting (page 199) in reference to the Venetian window Dr. Palme says: 'To Jones the motif of a round-headed window flanked by square openings had fundamental implications. On the north side of the Queen's House the slightly advanced centre portion is articulated by a trio—this arrangement giving a directive emphasis also to the single cube.' This coercive power is evident in the working of Jones's mind. He displayed it here throughout with energy—from the cube room across the terrace—descending the horse-shoe stairway to the river. This horse-shoe form was probably inspired by that of the reaches around the Isle of Dogs 4. There is good evidence to show that the whole perron was not completed till after 1728. This does not preclude the design from the emanations of Jones's mind. The axial drive is in two directions—one northwards from the hill and the other southwards from the river-stairs. Either way we travel we would be met by aspects of architectural dignity and would be convinced that Jones's mind was not devoted to the erection exclusively of a single royal abode.

One more question remains. Was James in need of a new palace at Greenwich? Did he need a new Banqueting House at Whitehall in 1619 at a time of financial crisis? Dr. Per Palme has answered this in a manner which applies also to the Greenwich need. The Catholic problem troubled James greatly. His policy of believing that he could be a champion of Protestantism and at the same time a friend of Spain became impossible after the Raleigh crisis in 1618. At this period work on the Queen's House ceased. It is not likely that James's love of his Queen had anything to do with this cessation. Having two princes for disposal, large dowries loomed in his mind continuously. He chose as their respective brides Catholics, but he wished to be at peace with the Anglican bishops. The Infanta had insisted that her children should be baptized according to the Roman use, and that her chapel should be large and open to the public. The Queen had refused to partake of the Anglican communion at her coronation.

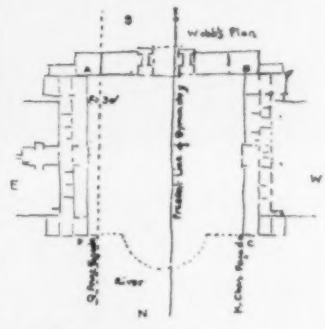
6, Greenwich plan from the Wren Society records, with points PWR co-linear (see 2)

7, another plan from the Wren Society records without co-linear setting-out.

8, du Cerceau's engraving of the chateau at Chateau.

She urged a Catholic marriage for the young Henry, and corresponded with the Infanta and a cardinal in the hope of the conversion of the King.

James spent most of his time hunting in the Theobalds area and in the company of worthless favourites. The Queen was mainly in residence at Greenwich and Denmark House, where she was allowed to find comfort in Catholic indulgence in the privacy of her chapels. James may have thought it wise to separate the activities of the two factions, looking upon the walled-in palace at Greenwich as an out-post of Catholicism. Inigo Jones was just the man to build a new palace. James had no financial sense in building matters. He was incorrigible and could not resist the temptation of extravagance—of making a sumptuous display of wealth and stateliness before foreign princes and ambassadors. The welcome of the brides was to be prepared with exceptional costliness. The auditing of accounts was delayed. The Queen's funeral was held up for two months. These irregularities were the outcome of an irresponsible mind. Here then is a reason why the new palace had to be built. In this light Webb's familiar plan of 1665,



9, Webb's plan for Greenwich.

9, was no more than an afterthought—a makeshift—made under financial restraint. Wren had good reasons for rejecting it. Webb's plan shows ABCD as a perfect square, BC being the already completed façade of the Charles block. XY is the façade to be of the Anne block to complete the symmetry about the axial line of the Queen's House. A deficiency of thirty feet is a significant one and needs consideration. However, the plan is not a pleasing one. It seems to emphasize by its negation of beauty Jones's original conception. It was quite unnecessary to place this quasi-square close to the river-edge. There was ample room southwards. The arcuated fore-court projects into the tidal stream. Why begin with the west block—the centre one might have priority? The Placentia chapel was the first of the larger buildings to be demolished in the early 1650s. This clearance would give cause to begin on the east block.

Nothing but a grand layout would warrant so great a change in the river-line.

current architecture



OFFICES AT COVENTRY **ARCHITECT ARTHUR LING**

These offices for the Department of Architecture and Planning, on the south side of Earl Street, form two sides of a rectangle enclosing a courtyard, with the new Council offices on the other sides. A pedestrian way runs under the building to give the public access to the courtyard. The east wing is of brick construction, with a pitched roof faced with copper to blend with the earlier offices; the north wing is finished in stainless steel and glass with a flat roof. This wing is carried on columns faced with opaque white glass mosaic and the ground floor exhibition hall has window and door frames in stainless steel. Windows in the north block overlooking the street are non-opening double glazed units and those overlooking the courtyard are

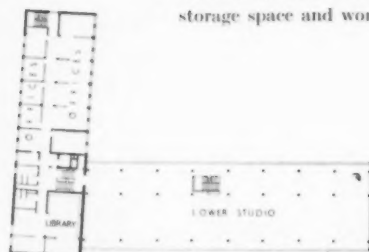
1, the northern studio wing seen across the courtyard. The paving panels have been supplied by manufacturers and can be used to test performance of the materials.
2, a corridor in the studio block.





3, the studio block looking from the courtyard north-west towards Earl Street. The patterned end wall is temporary as this corner will eventually be closed by the third stage of the offices.

OFFICES AT COVENTRY



gear operated lights with venetian blinds. Artificial ventilation is provided by means of inlet ducts located in the ceilings on the north side of the studios, blowing air which is extracted after circulation by similar ducts on the south side. Heating is by oil-fired boilers in the basement which feed low pressure hot water to the ceiling heating system. The basement also contains a garage, storage space and workshops.

4, the entrance hall. The abstract mural is by Michael McLellan. The floor is of white Sicilian marble, the reception desk is teak and sycamore and the panelling behind the desk is of Swedish redwood.

5, the City Architect's office has walls of natural Swedish redwood. The conference table has a top of Travertine marble and the chairs are covered in linen.



Jonwindows

Curtain Walling



Swansea Technical College, New Workshop Block for the Swansea Education Authority

This typical example of steel reinforced aluminium curtain walling provides a clean, bold conception of line and colour. Facing out over Swansea Bay and overlooking the developing new town centre, the elevation shown above meets the full force of south westerly coastal gales and is constantly exposed to a salt-laden marine-urban atmosphere. Such conditions call for qualities of strength and durability which are tested to the full all the time. Designed on a 3' 4" lateral modular basis 22 ft high, covering first and second floors, construction is a combination of galvanized steel rib supports with aluminium cladding extrusions. Floor band panels are of coloured ply-glass with liner board backing.



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6

GARAGE AT LINCOLN

ARCHITECTS DENIS CLARKE HALL,
SAM SCORER AND
ROY BRIGHT

The building stands near the centre of Lincoln, overlooking the Brayford and provides a showroom, offices and covered filling station, as well as an extension to the present garage in Lucy Tower Street. At the southern corner of the site there is a circular showroom containing a turntable, with the board room and Managing Director's office on the first floor.

The construction is of reinforced concrete, chosen for its economy, durability and fireproof qualities. Because of the very bad ground the whole building is carried on piles approximately 40 ft. deep. The garage roof is a reinforced concrete shell, supported on columns to provide a clear unobstructed area. It consists of four units, each 50 ft. square and 2½ in. thick, with the edges thickened to form the supporting framework. The lower points of each shell are supported on reinforced concrete columns, the high point at each corner being stayed against wind by means of a steel column. Between the two supports, at the low point of each shell, is a prestressed precast reinforced concrete tie 67 ft. long, which carries the outward thrust of the roof.

The building is heated by a central heating system operating from an oil-fired boiler; the showroom has forced air blowers, the offices have radiators and floor panel heating, and the garage has heaters blowing warm air. Mercury vapour lamps use the underside of the garage roof as a reflector, to give uniform lighting over the whole floor area.

7, the garage and filling station, showing the sweep of the paraboloid roof.

8, the garage interior. The roof structure gives an uninterrupted floor area.

6, the garage from the south-east, showing the circular showroom and the board room above it.



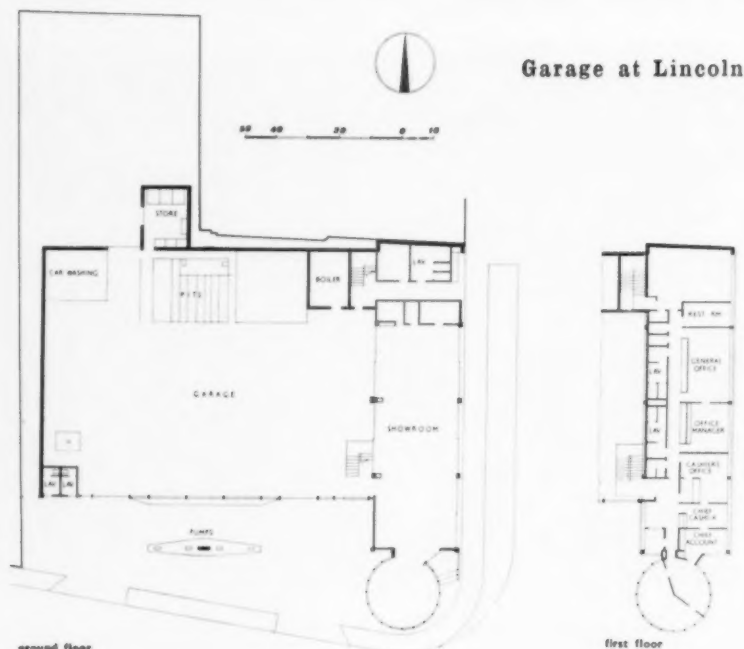
7



8



9, detail of the garage front seen in 7.



Garage at Lincoln

SPORTS PAVILION AT CATFORD

ARCHITECT PHILIP H. LAURENCE



10

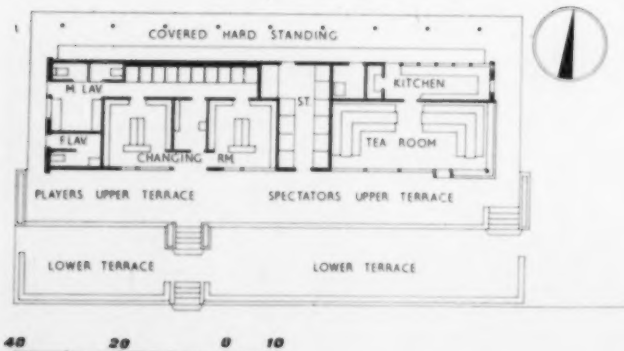
This pavilion for St. Dunstan's College was designed to serve the cricket field to the south, but is also used for rugby matches and has a covered terrace for spectators on the north side. The fall of the ground to the south provides two stepped terraces for spectators and players.

Piled foundations in the clay subsoil support a concrete raft and the south terraces act as structural retaining walls to counter the moving clay.

The walls are timber framed with plaster or insulation board internally, and cedar boarding externally, with brick for showers and lavatories. The butterfly roof is of 10 ft. wide prefabricated timber egg-crate units bolted together and anchored to the spine wall, covered with wood slabs and multi-ply mineralized felt. The ceilings are lined with insulation board.

10, the pavilion from the east.

11, the egg-crate roof over the north terrace.



11

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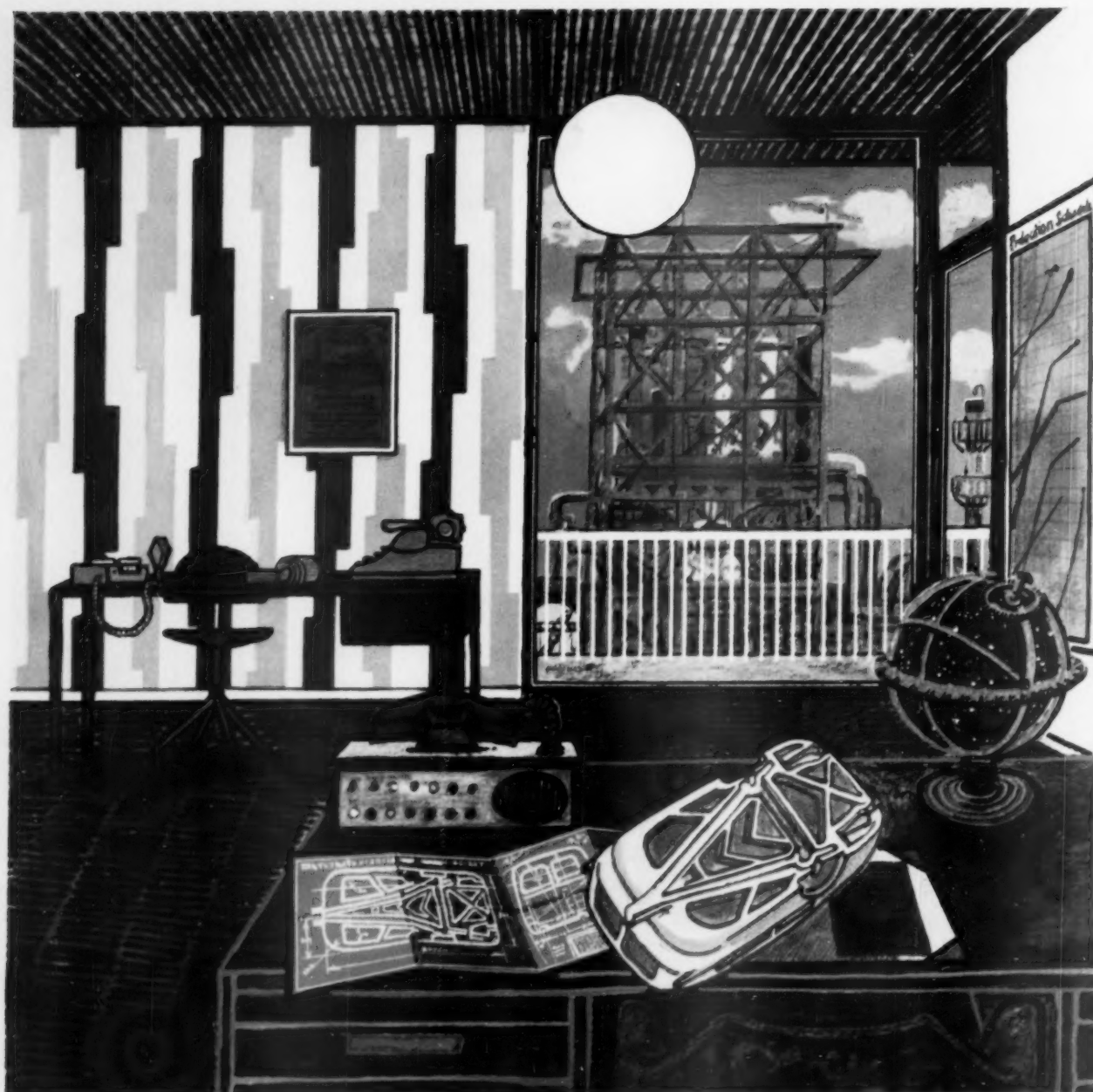
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EXHIBITIONS

PAINTINGS

The young Italian painter Dominic Gnoli has been exhibiting his latest drawings and paintings at the Arthur Jeffress Gallery, which has the discreetly lived-in look of a drawing room. The young English painter Evelyn Williams has been showing a group of her paintings and one or two drawings in the grimly institutional atmosphere of the South London Art Gallery. Gnoli is sophisticated, versatile and serious in a relaxed sort of way. Evelyn Williams is obsessively repetitive and in deadly earnest. Gnoli has a feeling for the warmer earth colours—sandy yellows and the range of reds in clay. Evelyn Williams's paint is ashen, and all the faces in her pictures tend to take on the Lazarus look.

Both of them are concerned with the state of alienation into which modern man finds it so easy to fall, but neither of them makes experimental use of it in the hope of being surprised by the marks their hands make. It engages them not as a possible solution for design problems, but as a human problem. It leads Gnoli to make what the writer Niccolo Tucci calls 'inventories of silence and absence,' and Evelyn Williams to a preoccupation with the inward gaze.

They are well aware of the arguments against preconception, and of the warnings that have been issued about the dangers of knowing beforehand what one wants to do, and they are eager to discover the potentialities of their medium in the act of working it, but without attempting to re-establish the old discredited frontiers between subject and object they are re-discovering some of the mystery and magic of representation in their unlegitimized approach to the *hautes pâtes* of the informalists.

Gnoli's feeling for dry, scratched uneven surfaces brings to mind the work of Antonio Tapies, but instead of inventing a piece of scarred wall he represents a complete building, and uses his raised paste to impart to the illusory aspect of his three-dimensionalism the sense of a hand-made model that has been pressed on to the canvas. If Tapies works like a plasterer bent on forestalling time and the weather, Gnoli has more the attitude of the potter: his material looks as if it has been thumbled into shape then baked in an oven. His feeling for the material he shapes



brings one into extraordinary intimacy with his temples and towers and his red 'Coliseo,' 1, for it transmits the sense of their having been handled as well as seen, so that without any loss of monumentality, their hugeness somehow becomes as embraceable as a Renoir nude.

Evelyn Williams exhibited with a group of painters that included Jack Smith and her husband, Michael Fussell, and it is clear that her feeling for thick, groovy paint has developed in association with them, but it is equally clear that their work didn't give her a mandate to build up the noses in her studies of the human face to such an extent that they hang right out of the picture. At first glance this looks like an eccentricity and can, and is, mistaken for a confused fall into the literal, and it must have taken a great deal of courage to outface the laughter. Her work will, I think, always bring laughter into one's response, even after one has become aware of its subtlety, its elegance and its melancholy, rather in the same way that one laughs in the presence



of some of the best primitive and archaic work. Her use of raised pastes serves a poetic vision of estrangement that brings to mind some of the haunted visages of Paul Klee, and turns her canvases into marvellous meeting places for the concrete and the ineffable, 2.

Arthur Tooth & Sons were modest about the loan exhibition which they arranged in homage to Matthew Smith. They described it simply as an assembly of some of the best canvases in private collections that were not shown in his Retrospective at the Tate in 1955. The exhibition was, in fact, extremely well chosen, and offered an exquisite distillation of his lush dream world of odalisques, fruit and flowers, glorified by a nostalgic burnish. It remained a splendid spectacle as long as one didn't look too hard at individual pictures, but it was essentially a spectacle of deep rich colour. One is grateful for it: it lies like manna on a wilderness of unresolved form problems. A picture like the 'Nude,' painted in 1932, 3, made a satisfactory



contribution to the spectacle, and there is something splendidly natural about the position of the hand between the legs, as if the model really were asleep; but the left shoulder is ugly and the right leg flat, and something about the head made me uneasy enough to crick my neck to get a straight view of it, and it now seems to me to have come straight out of Picasso. This doesn't matter in itself; after all, Picasso finally resolved his portrait of Gertrude Stein by giving her a face like an African mask; but the Picasso head doesn't resolve Smith's problem; the body simply pours inconsequently away from its hard modeling, and as a painting of the nude, I should think that this picture would be totally unacceptable in the country to which he was always paying desperate and unavailing homage.

Timothy Behrens, holding his first one-man show at the Beaux Arts Gallery, gave a comically thorough-going demonstration of uncouthness. He obviously went to some trouble to obtain dirty and broken frames and was so careful to avoid any sign of good taste in the hanging that it wouldn't have surprised me if he had arranged for everything to hang askew. For the pictures themselves he adopted a stale rhetoric of frowsiness, and succeeded in projecting an overall image of ugly young people living like pigs. The self-portraits, 4, which stared



4

aggressively at the spectator from every side of the gallery were studies in stepped-up self-revelation, which is probably the same thing as self-deception. He paints the nude as if it's the next best thing to butcher's meat, and he is no doubt in love with the Soutine legend, but at the moment he is too busy cutting a figure and trying to persuade us that he's the outest outsider in the world to have much time for Soutine the painter.

At the Arts Council Gallery, there has been a charming show of seventeenth and eighteenth century drawings from the Musée des Arts Décoratifs, mainly of designs for furniture and other items of interior decoration, including this design



5

by Charles le Brun for the decoration of one of the pavilions at Marly-le-Roy, 5. Many of the designs for furniture are fantastically elaborate, but are so elegant and lightly drawn that it's difficult to associate them with the heavy and over-

bearing objects which they so frequently instigated.

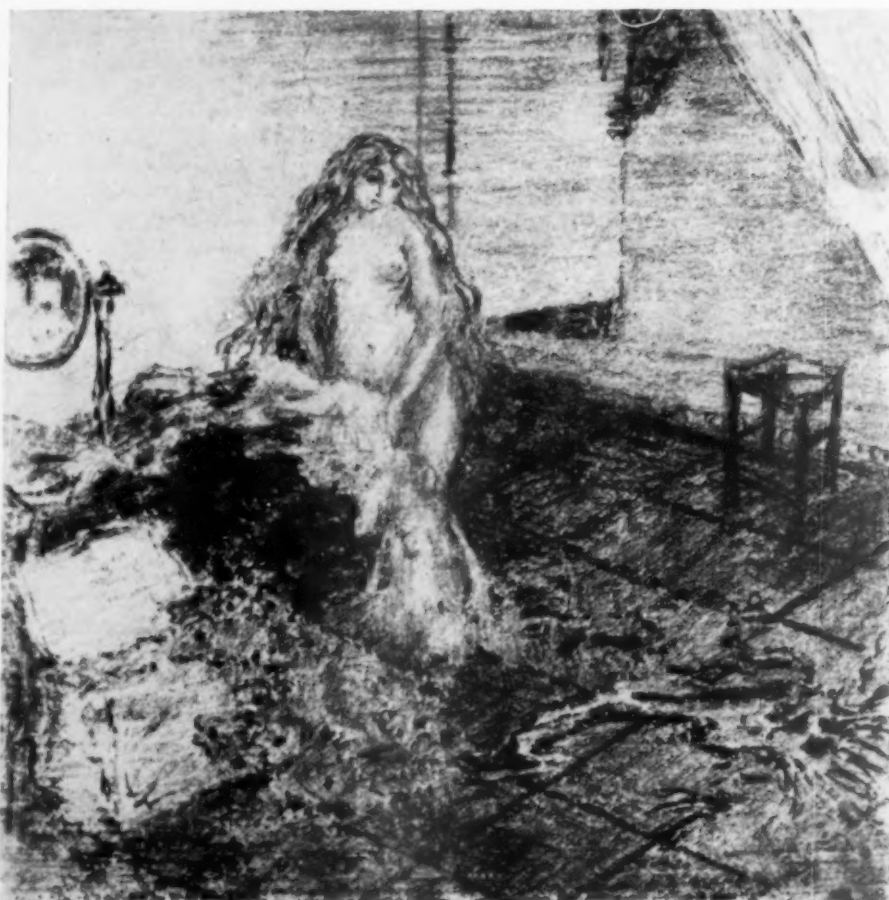
Although the technical standards were high, there were not many outstanding images in the exhibition of Polish graphic art held at the same Gallery. But the work of three of the artists seemed to me to be very spirited and original. Jerzy Panek was represented by some very large woodcuts in which delightfully jumpy animals were delineated in elaborate, wheeling formations of small irregular black squares, and Jozef Gielniak showed some strange and disquieting lino-cuts of the façade of a sanatorium composed of a kind of buzzing compost of tiny motifs which left one with the impression of an ant heap influenced by European architecture. There were also some interesting dry-points by Tadeusz Makowski who died in 1932. Makowski was a most accomplished painter, and although he was influenced by Gromaire, his humour and fantasy were extremely personal. His dry-point of three men in a bar, 6, provides a glimpse of his characteristically wooden and gnome-like personages, but one would have to see some of his paintings of children and animals in the same idiom to obtain a full sense of his warm and generous vision.

The Lefevre Gallery has recently held another of its distinguished anthologies of




6 M T

nineteenth and twentieth century works from France. It included a very fine snow scene by Pissarro, an astounding little burst of brush-strokes by Matisse which very nearly avoids becoming a landscape and makes the abstract impressionism of painters like Philip Guston look a bit static and contrived, and a lovely sanguine drawing by Renoir of a young girl's head, with the sharp, boot-button eyes and sensual smudge of a mouth which he so generously presented to any little girl who posed for him. A group of six little chalk drawings about 5½ in. square, executed by Bonnard in 1902 as illustrations for a book of Italian fairy stories which was not published, are marvellously full of light and space. The one reproduced here is called 'Interior,' 7, so presumably the



7



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though it must be admitted that Buckhaven has precious few other towns have been luckier, but no less radical) treatment may involve restoration as it is and at least will mean that it will be seen against old ones of the town.

At Burntisland the National Trust of Scotland has been working with their patient work in the town, Dunkeld and Falkland. On the Forth coast of Fife, it is none the less, thanks to the Trust, that the best preserved medieval burgh in Scotland is the market place, 1, where the Trust had restored them. It is expensive, but these delightful places again become thoroughly live in. Renewal, however, always means restoration and comes face to face with old

In these towns, schemes are going on in North Berwick (East Lothian), Uphall (West Lothian), Beith, Irvine (Ayrshire), Lerwick (Shetland),

that architects are set one of their most fascinating challenges. The Dunbar flats have now settled down reasonably well amongst the older buildings, 2, and were certainly a very real advance on anything that had been done before. But the designs absorb little of the strength inherent in the materials used; and are too timid to make a positive contribution to a town like Dunbar.

At Burntisland a much more ambitious approach has in fact been more successful. Here, as at Dunbar, it was a question of a derelict area between the main street and the harbour. But at Burntisland the decayed area was more closely related to the High Street, is farther from the shore and has less of a nautical feel than at Dunbar. In fact the scheme had to take account of High Street as well, for two of the new buildings actually stand in it. The job therefore was to make a design which would sit both in a busy street of very varied character, with a good deal of fairly heavy Victorian about it, and also where the houses were and would remain residential and quiet.

The scheme lies mainly along the line of what was Somerville Street, a gloomy trough of decrepit 17th-century houses, some of which had much



2, new flats at Dunbar.



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8

relevant passage in the stories is not known. The Modigliani from the same exhibition is a portrait of Jeanne Hebuterne, 8, painted in 1918 in an hotel bedroom in Nice. It is less sharply defined than some of his portraits of her, possibly because of her pregnancy, but instead has a delightful air of informality.

Robert Melville

COUNTER-ATTACK

NEW AMONG THE OLD

The idea of reviving the centres of old Scottish towns is still something of a novelty. Two or three years ago, Basil Spence's flats at Dunbar were more or less the only thing of their kind worth commenting on. Now, however, after a shaky start, one burgh after another appears to be turning from making its shapeless and dreary edges even more shapeless and dreary to sorting out its more or less derelict middle (and plenty have one).* Particularly in Fife, where old buildings have survived in greater numbers than anywhere else in the country, schemes for giving fresh life to the old town centres have become popular; and work on a large scale is either finished or on hand at Burntisland, Kinghorn, Dysart, Buckhaven, Leslie and Lochgelly (for all of which the architects are Wheeler and Sproson), while the National Trust for Scotland are going on with their intensive facelift at Culross. The most remarkable of these schemes is the total rebuilding of the old town of Buckhaven, a one-time resort and fishing town now become a huge and most unlovely sprawl of miners' cottages and council estates on the cliffs above beaches permanently black with coal dust. The fishing-port is mostly roofless and deserted; the Burgh Council and their architects have decided, rightly, to scrap the lot, and settle for a completely fresh plan and design making exciting use of the dramatic possibilities of a landfall often as steep as 1 in 3, with high-density housing in a mixture of formal and informal arrangements.

Here is a case where the new looks as if it will, through its boldness and vigour, be a complete justification of getting rid of the old. It isn't often

*In some cases a Government refusal to let the burgh expand its boundaries any further has forced it to look inwards. The ability to find more and more land to incorporate has been a major cause of central area decay.

that that can be said, though it must be admitted that in its present state Buckhaven has precious little worth saving. Other towns have been luckier, and here a more wary (but no less radical) treatment is needed. This may involve restoration as well as building afresh and at least will mean that new buildings will be seen against old ones of considerable character.†

As regards restoration the National Trust of course set the example with their patient work in the old streets of Culross, Dunkeld and Falkland. Culross, a tiny town on the Forth coast of Fife, surrounded by mines, is none the less, thanks to the National Trust, the best preserved medieval burgh in Scotland. The view of the market place, 1, shows old houses after the Trust had restored them. The work may be expensive, but these delightful little buildings have once again become thoroughly pleasant places to live in. Renewal, however, obviously mustn't always mean restoration and it's where new work comes face to face with old

†In addition to the Fife towns, schemes are going on in Dunbar, Haddington & North Berwick (East Lothian), Bo'ness, Queensferry & Uphall (West Lothian), Belth, Cumnock, Kilwinning & Irvine (Ayrshire), Lerwick (Shetland), and doubtless elsewhere.

that architects are set one of their most fascinating challenges. The Dunbar flats have now settled down reasonably well amongst the older buildings, 2, and were certainly a very real advance on anything that had been done before. But the designs absorb little of the strength inherent in the materials used; and are too timid to make a positive contribution to a town like Dunbar.

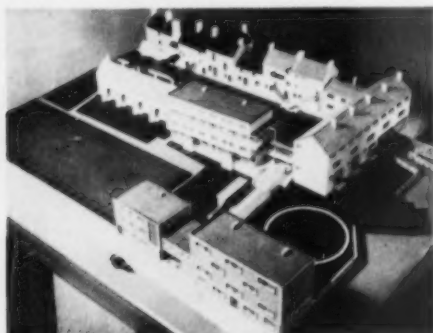
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†The scheme lies mainly along the line of what was Somerville Street, a gloomy trough of decrepit 17th-century houses, some of which had much



1, the market place at Culross, 2, new flats at Dunbar.

architectural character, though the whole street was so dingy that this was difficult to realize. The original idea had been to demolish these completely, but with the support of the National Trust, the Ministry of Works, the County Planning Officer and others, the architects (Wheeler & Sproson again) persuaded the Town Council not to pull down the houses on the south side of the street. By getting rid of the others, Wheeler and Sproson were able to make a long square, open at the east end, with the 17th-century houses on the south (restored with the help of a grant from the Historic Buildings Council) and new blocks on the north and west. The square is linked to High Street by a pedestrian lane under the new buildings. The bird's-eye view of the model, looking south-east across High Street into Somerville Square, shows the relation of the various parts, 3.



3, model of the redevelopment at Burntisland.

High Street is quite wide, so that a fairly large, heavyish building was suitable for that part of the site. Here the architects have taken advantage of a fall in the land to make a four-storey block carry on the roofline of the substantial early 19th-century group to the east, allowing the town hall spire to remain a dominant, while giving the street a unity despite the variety of heights and shapes,



4, Burntisland High Street.

5, the approach to Somerville Square from High Street.

4. (But the police houses on the right of the photograph do as much as possible to wreck the street: there was nothing for it but to ignore them.)

The approach to Somerville Square is either from

the east along Kirkgate (also to be rebuilt soon) or through a pend under the bridge-block in High Street. Here one goes along a short paved walk up a flight of steps into the square or by more steps into the flats and maisonettes on either side, 5. A bridge runs across at first-floor level linking the maisonette blocks.

Within the square the main accent remains with the old houses on the higher ground on the south side, and in particular with one glorious house near the west end, a three-storeyed building with an exceptionally richly modelled front, whose real qualities have only come out in the restoration, 6.



6, restored houses at the west end of the square.

There is in fact so much rich incident on this side of the square (and it is well brought out by the colour) that I feel an even plainer and more severe treatment should have been preferred. This is especially true of a row of two-storey cottages (a certain percentage was stipulated by the Town Council, though the overall number of dwellings was not), in which a rather restless rhythm of motifs and materials sets up some fidgety cross-currents. The general massing, however, is certainly successful, allowing for the almost spontaneous effect these Scottish towns often have: the largest building in the square, the four-storeyed maisonette block at the north-west corner, stands back and on lower ground, and so doesn't get undue prominence, 7. Above all, with all the variety of architectural styling, the square really is a unity. The junction of the old and new is most skilfully managed, 8,



7, model of Somerville Square from the east.
8, old and new houses in the square.



9, maisonettes in the north-west corner of the square.

the deliberate lowering to two storeys of the house at the south-west corner ensuring that the little house in the middle of the south side (at the left-hand side of the photograph) shouldn't be over-weighted by its large neighbours. And the smooth rhythm of windows on the top floor of the end block offsets a slight tendency to fussiness below.

The main criticism of the architecture of the larger blocks is that an inclination to playfulness doesn't really come off, 9. The fenestration marks off the divisions nicely, and the detail is fairly crisp; but the ground-floor windows are much too weak, and the alternating rhythm isn't satisfactory as a design in itself (especially on the near block in 4, where it seems, without inside information, meaningless). Again it is a pity that front gardens were allowed—indeed that the square wasn't paved throughout.

Nevertheless this is a courageous scheme. It is a real piece of urban renewal, of design in urban forms (incidentally housing many more people than the area did before), one on which the Town Council are to be congratulated for choosing young and comparatively untried architects rather than a bastion of reaction. And it is one which shows yet again how, when there is architecture like that of the Scottish 17th century to measure up against, it just doesn't do to be timid: one must go all out to create something emphatically of the 20th century. This case is worth looking at in detail because, as it is (for all its qualities) rather unequal in itself, it points the morals all the more clearly. Wheeler & Sproson have now moved on to, among other places, Dysart: the work here isn't yet finished, but already one can see that, with architecture created more and more as architecture, the solution of the problems of a reviving urbanity is being found more convincingly.



10, new houses at Lerwick by Richard Moira.

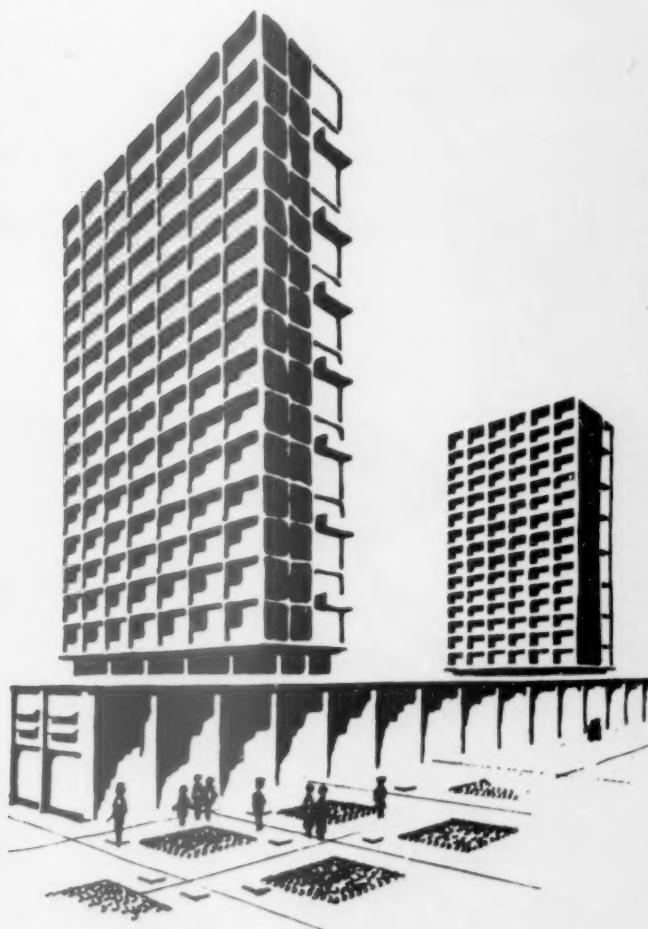
The point is of course that the convincingly new is also what is convincingly of the tradition. When a photograph of Richard Moira's Leog housing scheme at Lerwick, 10, was published recently, *The Scotsman* pointed out the contrast with the traditional Shetland way of building. The contrast is there all right. So, in buildings designed with this kind of integrity, is the continuity.

Andor Gomme



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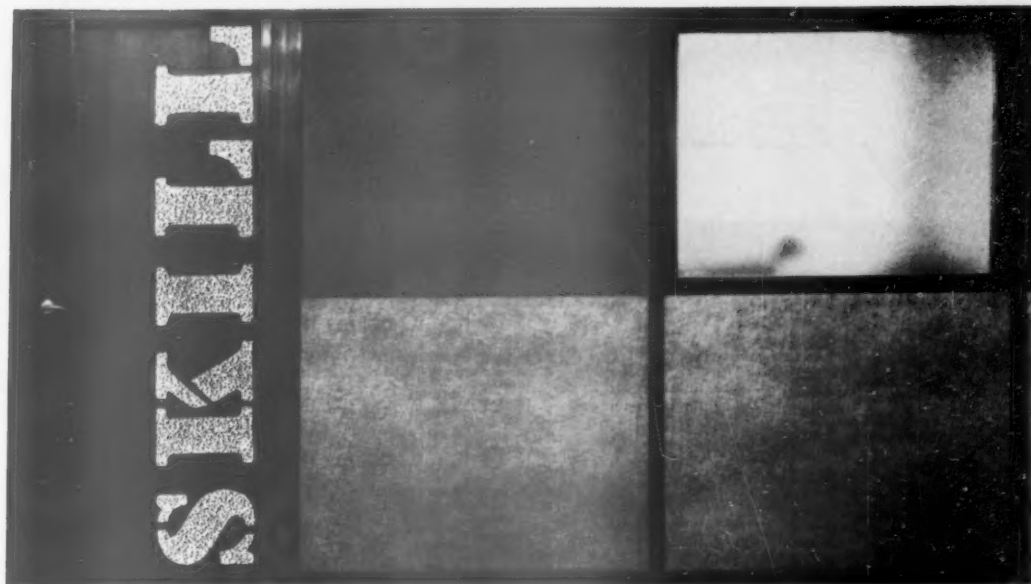
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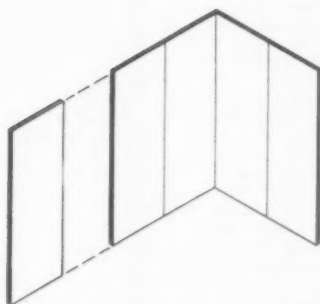
Thorn House partitions, designed by the architects, Basil Spence and Partners.



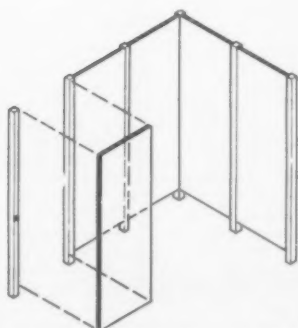
OFFICE PARTITIONS

by G. C. A. Tanner

A constant requirement of modern office buildings is that planning be flexible, which means that internal walls can seldom be regarded as permanent. The movable office partition, therefore, comes into its own. How the demands for flexibility can be reconciled with such factors as sound insulation and, above all, good appearance within a reasonable cost limit is considered in this article by G. C. A. Tanner, who examines and compares the design solutions of various architects on the one hand and of manufacturers on the other.



1, panel: the partition is made up of a series of factory prefabricated panels which may be solid, semi- or fully-glazed or containing door and frame.



2, post and infill: a post (or mullion) is the significant element and infill panels are supported between and by them.

The simple office partition has to satisfy a number of requirements which, in the first place, influence its design, its method of erection and its materials. Fortunately for the designer no one partition usually has to satisfy all possible requirements. Particular circumstances may place the emphasis on, say, the need to cut down noise from one office to the next, or a high fire resistance rating, as in tall buildings. The demand which is almost always present is for flexibility, and a study of systems, whether architect's or manufacturer's shows how preoccupied are designers with this problem.

It is reflected, first and foremost, in methods of construction or assembly on the site. The structural principle is usually one of two types. I have called one the *panel* principle, 1, and the other *post and infill*, 2. Architect-designed partitions are, as often as not, of the *post and infill* type, whereas manufacturers, with one or two notable exceptions, seem to favour the *panel* principle. The reason is not easy to establish, but may be more obvious after a consideration of individual systems.

Two things emerge from a survey of partition design. One is that there is a large number of manufacturers' more-or-less standard systems on the market today. The other is that few architects appear to design their own partitions. This article confines itself to some half dozen manufacturers' systems as representing the best in terms of flexibility, good appearance and value for money.

Why do architects not design their own partitions? Manufacturers probably would like to think that their

products solve the problem so completely that there is no occasion for the architect to design his own. This is probably true up to a point and it may well be that when dimensional co-ordination is fully accepted in the building industry 'off-the-peg' partitions will be the order of the day. But until such a situation is realized—and at times it seems a long way off—the inability to reconcile the module of a standard partition system with that of an existing or even new building will leave the architect no alternative but to design something special to fit his job.

On the other hand, however, good architecture results from a careful consideration of all problems, very often from first principles and should an architect not find a standard system suitable for a particular project it is entirely praiseworthy that he should set to and design one for himself. Needless to say manufacturers of standard systems are quite happy to do this for him and many well known firms deliberately do not produce a standard system but aim to design something special each time. They claim that their specialization in this field enables them to appreciate all the design problems. It certainly seems that manufacturers, through their designers, are capable of achieving a standard of visual design equal to that of architects.

ARCHITECTS' WORK

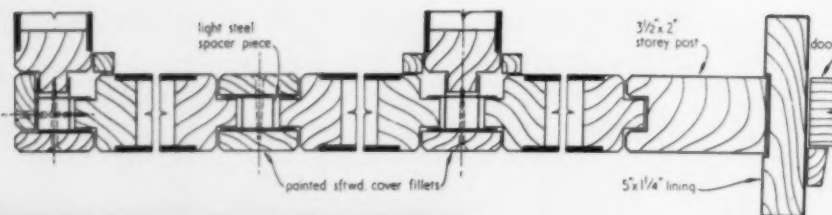
Of the two most recent large office buildings in London, Thorn House and Castrol House, it is interesting to

observe that the partitions were wholly architect-designed in one case and the result of collaboration of architect with manufacturer in the other. The architect-designed partitions described in this article, however, have this in common. They are of good appearance, they represent value for money in terms of what was considered the critical factor in the particular circumstances and they are obviously the result of a careful analysis of the problem.

One of the cheapest examples is that designed by Farmer and Dark for the Loewy offices at Poole, 3. Translated to today's prices the cost per square foot was about 6s. 1d., not including doors, door furniture and painting. The partition consists of a number of standard width panels (the principal module is 3 ft. 3 in.). Each panel is 1½ in. thick and comprises a hardboard eggcrate core and hardboard facings both sides with a solid rebated timber frame member along the side edges. The vertical joints are covered with timber cover strips, 4, which are screwed together back to back with a light steel H section spacer piece between. The spacer pieces are each 1 in. long and are fixed at approximately 30 in. centres in height. Storey posts are used where doors occur. The architects emphasize that low cost was critical and limitations in the detailing resulted. For instance, sound insulation has been found not entirely adequate for board rooms and director's offices though it is quite satisfactory for general offices.

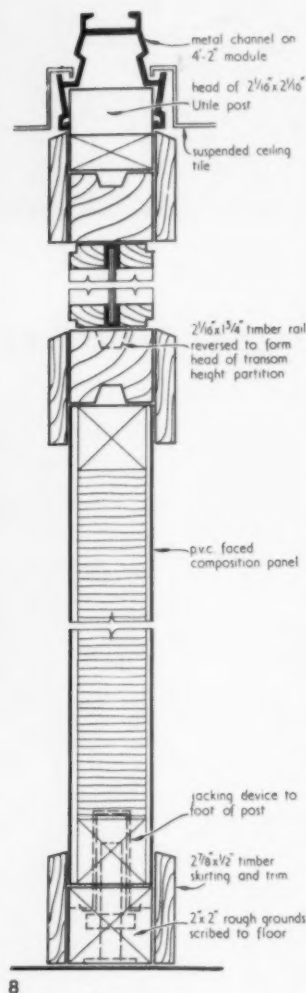
In the offices for Frenchay Products Ltd. at Kingswood, Bristol, Leonard Manasseh and Partners de-

SKILL



3, partitions at the Loevy offices, Poole, designed by Farmer and Dark.

4, details of the partition at the Loevy offices, Poole, showing methods of connecting wall panels.



8

signed standard 4 ft. wide timber framed panels for the office partitions which were simply butted together and screw-fixed, 5. Low cost and simple fixing (the work was carried out by the client's staff) were primary considerations in detailing. The frames are softwood and the infilling either 24 oz. clear sheet glass fixed with wood beads or 2 1/4 in. thick sandwich-construction plaster board with a neat little aluminium angle trim at the junctions with the frame.

One of the most recently completed office buildings in London, Thorn House, is an exception to the rule that, generally, architects do not design their own partitions. Basil Spence and Partners have devised a neat timber framed system on the post and infill principle. They have used a 2 1/8 in. square hardwood (Utile) post, grooved on the two edges which are within the thickness of the partition. The solid infilling is in panels 4 ft. wide and consists of composition board faced both sides with pvc and is grooved on either edge and a timber tongue inserted between panel and post, 7. Each post is pushed into an aluminium trunking member at the head and jacked up off the floor by means of a 1/2 in. square adjustable bolt, 8. Generally a transom rail is used at door head, and where the partition does not continue to ceiling level the groove in the top of this rail is a convenient service duct for conduits. A conduit panel is provided alongside each door to carry vertical drops. This panel plus the door make up the standard panel width.

An aluminium post and infill system was designed by Clive Pascall and Peter Watson and manufactured by Compactom Ltd., for the new offices of Honeywell Controls at Greenford Middlesex. Full height, 9, and door head partitions, are both used here. In each case an extruded aluminium post is placed at 3 ft. centres approximately. Solid panels, which are up to dado rail, of 1 in. thick composition board faced with pvc and 32 oz. clear sheet glass in timber frames above are set between posts. The dado rail consists of two aluminium plates fixed to mild steel brackets within the thickness of the partition, 10, thus forming a horizontal duct for electrical wiring. Vertical drops are housed within the aluminium posts, 11. For fixing, a timber batten is screwed to the floor and the web section of the aluminium post cut away at the foot so that the post slips over the batten.

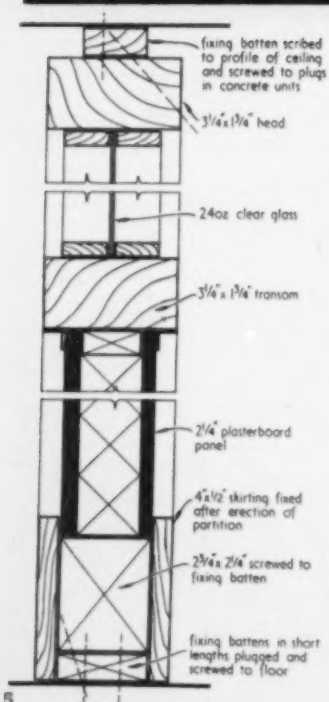
SOME MANUFACTURERS' SYSTEMS

Most of the producers of wall-boards and plasterboards have devised a system of partitioning based on their product.

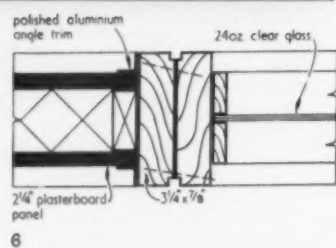
They include Stramit (Movafush), The British Plaster Board (Manufacturing) Ltd. (Paramount), Gyproc Products Ltd. (Gypunit) and British Werno Ltd.; and a couple of these are described. Other producers, such as Roneo Ltd., are office furniture specialists. A much smaller group are those, such as Compactom Ltd. (who made the partitions in the Honeywell Controls Building) who are specialists in the making of partitions which may be described as tailor-made for a particular job. They have their own design office, but are quite willing to carry out the architect's design using the material most suitable for the purpose.

Of the many standard systems on the market most are of the panel principle of construction and of these

[continued on page 357]



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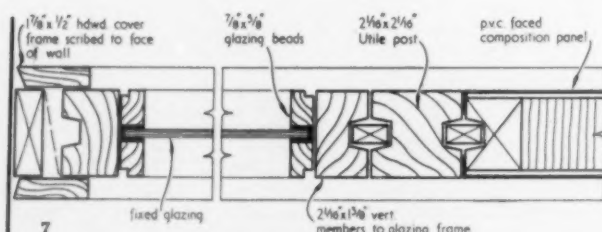
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5, office partition for Frenchay Products Ltd., Bristol, by Leonard Manasseh and Partners. Vertical section through the partition showing ceiling and floor fixings.

6, Frenchay Products partitions; plan detail at the junction of a glazed and a solid panel.

7, Thorn House partitions by Basil Spence and Partners. Plan detail showing the connection between 2 1/8 in. square Utile post and glazed and solid panels.

8, Thorn House partitions; vertical section showing the fixing of the post at ceiling level and the jack device at floor level.



7

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AP293

continued from page 356]

there is a broad division between metal on the one hand and what must simply be called non-metal on the other. This group includes timber and the steadily increasing field of composition boards.

PANEL PRINCIPLE

1. Non-metal systems

British Werno Ltd.

This is one of the better looking non-metal systems. It consists of panels made in three standard widths, 3 ft., 3 ft. 4 in. and 4 ft. There are three types of panel, solid, half glazed and transom glazed, and two other components, the door lintel (glazed or solid) and the conduit dropper, 12. The panels consist of a timber frame with a filling of parallel dry straws at right angles to the faces of the panel. To this the facing sheets are glued and these may be of hardboard, plasterboard, asbestos, a variety of wood veneers, pvc sheeting and melamine finishes. Thicknesses vary from 2 in. to 3 in. according to the facing. Assembly is as follows: softwood plates are fixed to the floor and ceiling and the panel is firmly wedged between them. The next panel is butted up to it, being locked in position by a wood tongue which fits between the grooved frames.

Stramit Boards Limited

Stramit market a partition system called *Movaflush* which consists of panels of their building slab faced on both sides with hardboard and framed on all edges with timber. Standard sizes are 6, 8, 9, 10 or 12 ft. high by 4 ft. wide by 2½ in. thick overall. Where solid panels are used they are wedged between floor and ceiling plates and their vertical edges rebated, 14, for screw fixing of one panel to the next. Where glazing occurs or at doorways or angles a storey post is used, and in this case the vertical edge of the panel is grooved to house a timber tongue fixed to the post.

2. Metal systems

Roneo Limited

Roneo have just produced a new system called *Flushline* which is essentially a panel system, that is the partition is made up of prefabricated panels which are coupled together on site and the junction between panels covered with a neat clip-in metal strip finishing flush with the panel face. Lateral movement is prevented by means of channels fixed to floor and ceiling (into which stiffener plates on the panel edges are fitted), and by distance keys fixed between panels on either side. A black laminated plastic skirting is clipped to the floor channel.

There are seven standard panel types—solid flush, semi-glazed, glazed frame (fully glazed), solid above glazed, glazed above solid, head height and low barrier. Each of these is produced in a variety of standard widths and heights. The solid panels are a steel case packed with a sound absorbing filling. Normally panels are stove enamelled in the factory to one of a number of standard colours within the B.S. 2660 range. However, special finishes are available such as timber veneers, melamine, pvc or hardboard ready for painting on site.

Sankey Sheldon

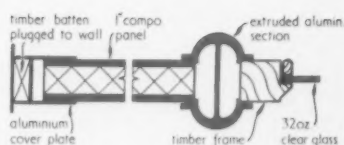
The construction of this system, 17, is substantially similar to Roneo though in detail there are certain differences.



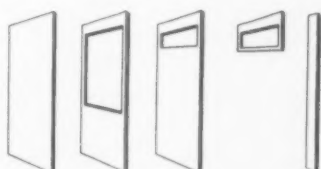
9, partition designed by Clive Pascall and Peter Watson for Honeywell Controls.

10, vertical section which shows the hollow transom for services below glass level.

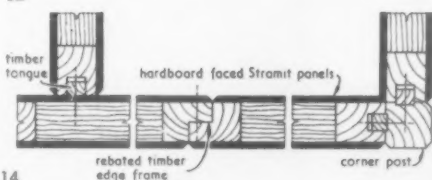
11, plan detail showing the slim extruded aluminium post.



11



12

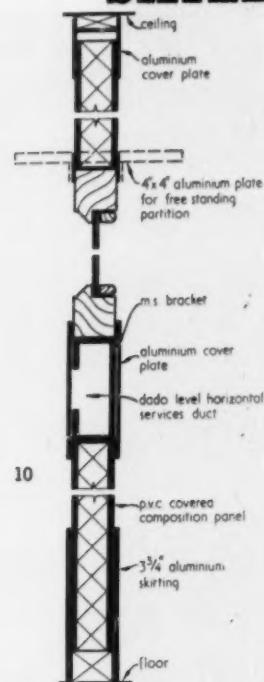


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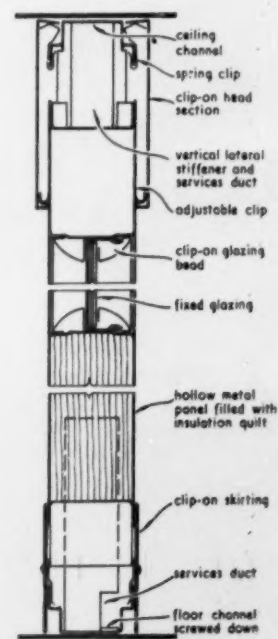
12, British Werno's standard partition panels. Left to right, solid, half glazed, transom glazed or solid lintel, conduit dropper.

13, plan detail of the British Werno partition.

14, plan detail of Stramit's Movaflush partition.

15, Roneo's 'Flushline' metal partitioning.

16, vertical section through Roneo's 'Flushline' partition showing method of ceiling and floor fixing.



16

SKILL



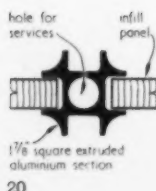
17

17, standard system of Sankey Sheldon described as the 'picture window.'

18, Castrol House partitions designed by the architects in collaboration with Holoplast Ltd.

19, the Cunic partition.

20, the Cunic partition 1 1/2 in. square extruded aluminium post section.



20



19

POST AND INFILL PRINCIPLE

Holoplast Limited

Holoplast partitioning as used at Castrol House, 18, is an example of the 'post and infill' system. Normally the post is a slim extruded aluminium section, into which the infilling panel is inserted. At Castrol House the Fire Authorities required steel for the posts and a one hour fire rating on the panels for all partitions on the top six floors (that is above 80 ft. from ground level). In collaboration with the architects to the building (Gollins, Melvin, Ward and Partners) Holoplast designed a rolled steel section, and produced an infill panel comprising exfoliated vermiculite faced with asbestos board and pvc.



18

Their standard partitioning is of several types which they describe as 'Standard,' 'Assembly,' 'Tongue and Groove,' 'Interchangeable' and 'Universal Joint.' The basic difference between 'Standard' and 'Assembly' is that the latter is more easily and quickly demounted than the former. 'Interchangeable' and 'Universal Joint' are designed to permit any arrangement involving intersecting partitions. There are various infill panels, ranging from the 'Holoplast' panel (resin bonded wood fibres in a cellular construction) to the fire resisting panel used at Castrol House.

Cunic

This is one of the latest systems on the market, 19, and was described in *The Industry* notes of the February 1960 issue. It is designed by Robert Nicholson on the 'post and infill' principle the basis of which is an extruded aluminium post, 20. The head of the post is inserted into a grooved timber batten at ceiling level and is wedged tight by means of an adjustable pin at the floor. A suspended ceiling system has also been designed for use with the partitioning. It is based on a 3 ft. 4 in. module both ways. Any material can be used for

the infilling, the only consideration being that if its thickness exceeds the groove on the post the edges of the infilling panels must be rebated or a lipping applied.

CONCLUSIONS

A consideration of factors which influence design will show that most of them are themselves influenced by the requirement for flexibility. It is very much more difficult, for example, to detail for a high degree of sound insulation (where this is necessary) when quick and easy dismantling is demanded.

It would be an interesting exercise to make a survey of the extent to which the occupiers of offices require to alter the positions of partitions. Without doubt there are many instances when a high degree of flexibility is essential. Whether it is always necessary is debatable. A stud frame partition built and lined on the site by a couple of carpenters is demountable and re-usable up to a point and may be quite satisfactory if it is done only once or twice in the life of a building.

The manufacturers of composition board systems make intelligent use of the sandwich form (core and facings) of their boards in assembly details. But the necessity for fixing battens at floor, ceiling or wall and—in some cases—the use of a 'wet' joint renders them less flexible in the sense that making good and re-decoration is required after moving.

If complete flexibility is essential the Cunic partition is hard to beat. Not only can it be quickly and easily put up, taken down or moved around, but also its method of head and base support is such that virtually no trace is left. It is worth noting that at Thorn House by relating the module of the suspended ceiling with that of partitions a similarly neat detail to Cunic has been achieved.

As to interchangeability (i.e. being able to take out a solid panel, for example and insert a glazed one in its place) it is difficult to see how this can be done with Cunic without dismantling the whole section of wall. The various all-metal panel systems, on the other hand, seem to have this aspect well solved. A typical detail, such as that of Roneo, is the clip-in cover plate over the vertical joint between panels. This can be snapped out and the connection between panels exposed thus enabling an individual panel to be removed and replaced. The metal systems show a good deal of ingenuity in this sort of detailing, probably because they are amongst the more expensive and adaptability is, therefore, regarded as very important. The Roneo adjustable head detail, 16, which allows almost any ceiling height to be coped with using one of a number of standard height panels, is a case in point.

Manufacturers will often quote sound insulation figures for their partitions based on actual tests. The question of a reasonable degree of reduction to transmission of sound cannot simply be resolved in this way, however, as the partition is by no means the only likely barrier to (or conductor of) sound. The structure of the building itself is important and finishes to floors and ceilings are critical factors. A high degree of sound reduction in a well insulated partition is of little value if sound can carry over it above a suspended ceiling or even through the structure of the building. Also it is important

[continued on page 360]

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SKILL continued from page 358

to check that the figures quoted by manufacturers are average figures over the usual frequency range. Only when these factors are taken into account will the sound insulation values of different partitions have any significance. For example the manufacturers of non-metal systems (usually better sound reduction than metal) claim between 28 and 37 decibels within the frequency range of 100 to 3,200 c/s (without resorting to double skin construction). This is a level at which normal speech is intelligible but is quite satisfactory for most offices.

It is important to differentiate between sound insulation and sound absorption in a partition. The former refers to the reduction in transmission through the partition to other rooms and depends on the construction, whereas the latter refers to the reduction in the reflection of sound within the room and depends on finishes. The figures mentioned above are for sound insulation (room to room). It can be assumed that non-metal partitions will give better sound absorption also.

Another factor which should be considered is provision for service runs, principally electrical wiring and telephone cables. This has been well solved by Clive Pascall and Peter Watson in their Honeywell Controls Building in which vertical drops for services are housed within the aluminium post and horizontal runs within a hollow dado-level rail on which switches can be mounted. Provision for horizontal runs is also well solved by Roneo and for vertical drops by Cunic. A slightly less flexible arrangement is possible with most of the non-metal systems, but within its limitations the 'conduit dropper'

panel of British Werno is a satisfactory solution.

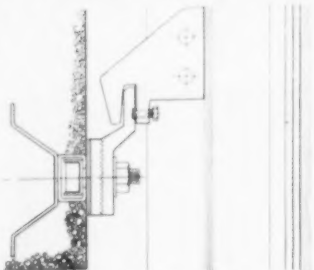
Fire resistance is a less critical factor in design and detail. Most systems obtain a $\frac{1}{2}$ hour rating, but in special circumstances, such as Castrol House, this had to be increased to one hour and was achieved by using rolled steel posts and infill panels comprising an exfoliated vermiculite core, and asbestos facing.

The question of costs is not easy to answer in an article such as this. Many of the manufacturers of standard systems will quote costs per ft. super or yard super, almost always with the proviso that their figures do not include for doors or glazing, etc. As nearly all partitions require doors and very many require at least some glazing the figures are not always helpful. It is very much easier to say that in 'such and such' a job the partition cost xs. per square foot. But even this cannot give a completely accurate picture. The factors which seem to influence costs most are finishes, the assembly method, the degree of flexibility and the amount of sound insulation—possibly in that order. The introduction of melamine plastic and pvc plastic finishes add to the initial cost but are a sound investment as they are easy to clean and eliminate the need for painting. The systems discussed in this article would probably cost between 6s. and 15s. per square foot starting with the non-metal composition boards, such as Stramit Movaflush, and going up to the metal and post and infill systems. If flexibility is not a consideration it is likely that none of the patent systems could compete with the good old-fashioned stud frame or breeze block partitions.

THE INDUSTRY

Curtain walling

The tremendous activity in this field of a few years ago has, naturally enough, tended to quieten down as was evident at last year's Building Exhibition. A recent development by Williams and Williams is of interest, however. In collaboration with the architects, Gollins, Melvin, Ward and Partners, Williams and Williams devised a system for the tower block of Castrol House, which involved



1, details of the fixing of half-mullions to the concrete structure of Castrol House.

prefabricating the curtain walling in panels one bay wide (approximately 3 ft. 10 in.) by one storey high. Each panel was installed as a complete unit—mullions, transoms and sash—being 'hung' from the structure by means of a patent hook section attached to the mullion and slipped over and secured to a fixing bolted to the face of the concrete, 1. The mullions framing each panel are in

fact half-mullions, forming a full mullion with the adjacent member of the next panel. The purpose of this 'splitting' of the mullions is to allow for expansion which can be quite a problem on a building of this size. Each panel is a fixed entity and expansion takes place between panels. The gap between half-mullions is covered by a clip cover strip which attaches to one half-mullion. The aluminium extrusions used for the mullions and transoms are deep anodized to approximately 1/1,000 in. and finished in natural colour except for the upper sash frames of the windows which are anodized black. Cold cathode tubes are fitted behind the blue-green glass infill panels and the effect at night is of 'trays' of green light. The whole of the curtain walling was made in two months and erection was at the rate of two floors per week.

Williams and Williams Ltd., 37 High Holborn, London, W.C.1. Telephone Holborn 9861.

Fuel Stores

The Coal Utilization Council, whose publishing record is exceedingly good, have just issued a handbook on 'Fuel Stores for Houses and Flats' (price 2s. 6d.). This discusses the problem posed by every main type of dwelling and gives a set of drawings of fuel stores suitable for each. There is, however, one odd discrepancy. When, shortly after the war, the Fuel and Power Advisory Council made their

[continued on page 362]

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COLOUR

the logical use of colour in building no. 3

the age effect

Young children have a relatively pigment-free lens of the eye, but as the years go by the lens develops a pigment like that in the skin. It is yellowish or brownish and as the years pass, although the whole of the lens is pigmented, the increased degree of pigmentation tends to concentrate at the periphery of the lens. This degree of pigmentation prevents some of the colour energy, particularly in the blue end of the spectrum, from reaching the retina of the eye.

This change in colour reception (and it is similar in both sexes) is progressive with age and very few people are aware of the change of attitude towards colour reception on account of the slow change, but the effect upon the tolerance of colour is a factor of major significance. For the great majority of people the age of 25 years marks the maximum appreciation and differentiation over the whole spectral range from violet to deep red. Even by 30 years the capacity to differentiate between the deep blues is beginning to become apparent, and by 55 years the effort to differentiate in the blue and green end of the spectrum is considerable.

The increased pigmentation of the periphery of the eye with age still further distorts the colour vision away from the line of sight.

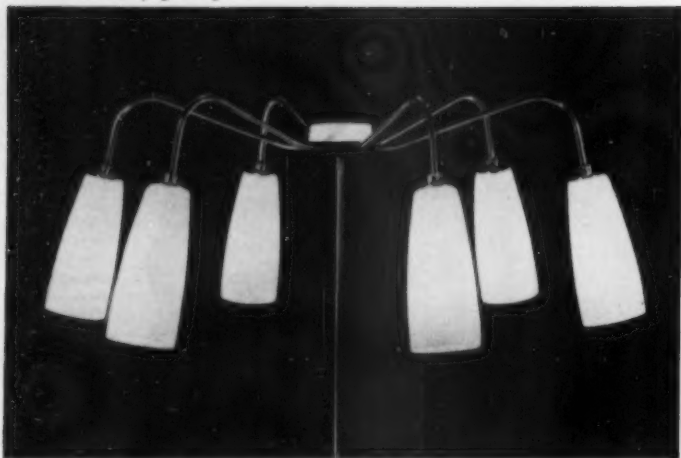
Both of these effects combined, mean that given free choice older people tend to select colour schemes for the interior or exterior of buildings which are predominantly taken from the yellow, orange and red end of the spectrum and often light colours containing these hues. Blues and greens are eschewed except for contrast and small areas.

It is therefore advisable to know not only the function of a building, but also the age group of the occupants, before deciding on a series of colour schemes.

The next announcement in this series will be on "The Quality of Daylight".

Goodlass, Wall & Co. Limited, Corn Exchange, Liverpool 2 or 179/185 Gt. Portland Street, London W.1.

COLOUR



2, one of the Variform light fittings from the new GEC range.

report on this subject (printed in Post War Building Study No. 10), they gave definite recommendations about size. These were that a store should be 30 sq. ft. in all in town and 40 sq. ft. in the country. CUC have always held that this recommendation was right. Unfortunately MOHLG then came along with their Housing Manual and permitted storage space as low as 12 sq. ft. per house in town and 20 sq. ft. in the country. The discrepancy in this booklet consists in the fact that, though in the text CUC advocate the higher standard, they feel obliged in the illustrations to cite examples of the lower standard. Nevertheless, this is a sensible and helpful office reference.

Coal Utilization Council, 3, Upper

Belgrave Street, London, S.W.1. Sloane 9116.

Components for Electroliers

If the years after the war were years of great invention in light fittings, more recently we have moved from invention to consolidation. There have been few significantly new shapes for light fittings during the last few years. Instead, manufacturers have been chiefly busy on the equally praiseworthy business of making accepted forms cheaper.

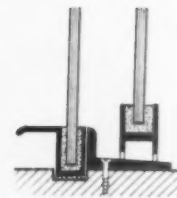
A very well conceived move of this kind has been made by GEC who in their Variform light fittings have taken the 18 most used bracket components and the ten most used shade

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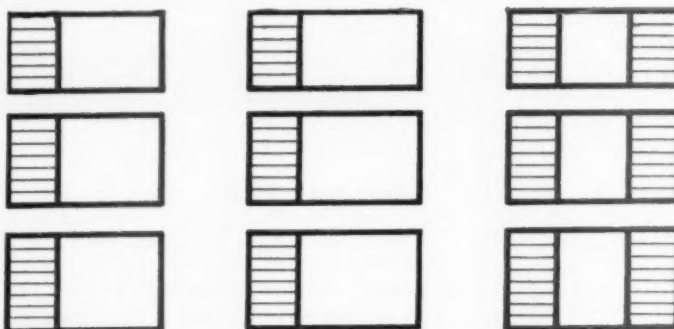
More Domestic Windows off the Peg

Viking 'Scandinavian' windows differ from the usual run of domestic windows offered in this country in that the fixed lights are double glazed and that louvres are used in place of opening lights. Sub-frames are of aluminium alloy and these are fixed in redwood surrounds. Horizontal dimensions are 3 ft. 10 in., 4 ft. 8 in.,



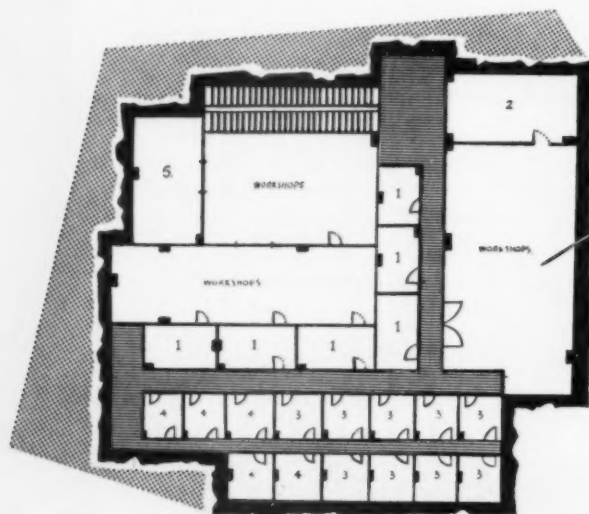
4, part section through a 'Scandinavian' window.

5 ft. 5 in., 6 ft. 3 in. and thence, by 9 in. increments to 9 ft. 3 in.; and there are three heights: 3 ft. 2 in., 3 ft. 7½ in. and 4 ft. 1 in. The horizontal dimensions are generally near to or on brick sizes, but the vertical dimensions are not. The proportions (as can be judged from the illustration) are good. There are two main types:



3, part of the range of Viking 'Scandinavian' windows. Left and centre, 6 ft. 3 in. and 7 ft. windows with 6, 7 and 8 louvers. Right, the 7 ft. twin range.

[continued on page 364]



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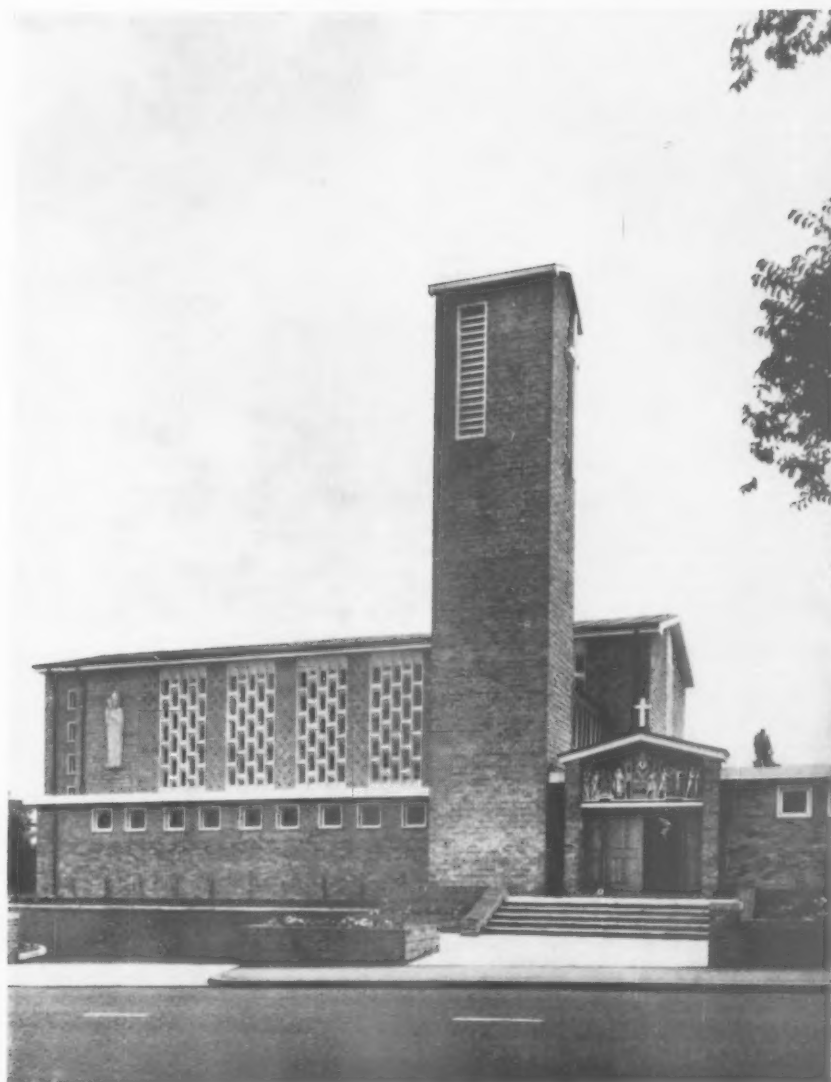
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continued from page 362]

one with the louvre to the left of the light only and the other with the light flanked by louvres on both sides. The windows are obtainable from *Thos. Bennett and Sons (Leeds) Limited, South Leeds Glassworks, Leeds 11, Leeds 30623.*

CONTRACTORS etc

Housing, Bethnal Green, London. Architects: Denys Lasdun and Partners. Main contractors: *Wates Ltd.* and *Rush & Tompkins Ltd.* Sub-contractors: Heating and hot water: *Matthew Hall & Co. Lifts: The Express Lift Co.* Metal windows: *Williams & Williams.* Metal door frames: *Joseph Sankey & Sons; Williams & Williams.* Water boosting equipment: *G. C. Pillinger Ltd.* Site investigation: *Ground Explorations Ltd.* Piling: *The Pressure Piling Co.* Artificial portland stone cladding: *The Modular Concrete Co.* Facing bricks: *Dunbrik Ltd.; St. Ives Sand & Gravel Co.* Flue lining: *Fossilsil Ltd.* Electric water heaters: *Elsy & Gibbons Ltd.* Refuse chute equipment: *Broads Manufacturing Co.* Television installation: *EMI Ltd.; E. Barden Ltd.* Pressed steel surrounds: *Richard Chantry & Co.* Louvres and ventilators: *Greenwood's and Airvac Ventilating Co.* Lightning conductors: *F. E. Beaumont & Co.* Glazing: *Faulkner Greene & Co.* Coloured vitrolab panels: *Plyglass Ltd.* Coloured armoured panels: *Pilkington Bros.* Plaster board ceilings: *Gyproe Products Ltd.* Floor tilings: *The Marley Tile Co.* Light-weight screeds: *Celcon Ltd.* Paint: *ICI Ltd.; Mander Bros.; The Inertol Co.*

House at Arkley, Herts. Architect: *John Voelcker.* Main Contractor: *F. C. & A. E. Pollard.* Sub-contractors: Bricks and cedar shingles: *Eastwoods Specialists Ltd.* Electrical installations and equipment: *Graham & White Ltd.* Wood block flooring and cork tiling: *Stevens & Adams Ltd.* Synthenite floor screeds: *PB Industrial Flooring Ltd.* Taps, etc.: *Barking Brassware.* Ironmongery: *Standard Range & Foundry Co.* Sanitary fittings: *Adamsez Ltd.* Bondacoust sound insulation: *British Celanese.* Windows: *Crittall Manufacturing Co.* Lighting fittings: *Troughton & Young (Lighting) Ltd.* Blocks: *Lignacite (North London) Ltd.* Sliding door gear: *George W. King Ltd.*

Additions to a House at Baywater. Architects: *Alison and Peter Smithson.* General contractor: *Jarvis Bros. (Builders) Ltd.* Sub-contractors: Skylight (double dome): *Cordar Ltd.* Sanitary ware: *Adamsez Ltd.* Bath: *Shanks & Co.* Paint: *ICI Ltd.* Patent glazing: *Faulkner, Greene & Co.*

Staff Club and Students' Canteen, University of Edinburgh. Architects: *Basil Spence & Partners.* Sub-contractors: Mason and builder work: *William Black & Son.* Joiner: *Alexander Kent.* Plumber: *Patrick Knox & Son.* Plasterer: *Scott & Davie.* Electricians: *William Barton & Sons.* Painters: *A. C. Wood & Son.* Heating engineers: *Ashwell & Nesbit.* Glaziers: *City Glass Co.* Kitchen equipment: *John Kelly & Son.* Upholsterers: *C. & J. Brown.* Lift engineers: *Express Lift Co.* Floor finishes: *Korkoid Decorative Floors Ltd.* Roofing: *Wm. Briggs & Sons.* Ironmongery: *Bell Donaldson & Co.* Blacksmith: *J. Anderson.* Hardwood flooring: *A. M. Macdougall & Son.*

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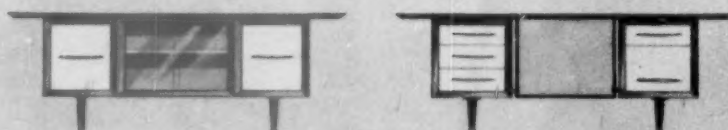
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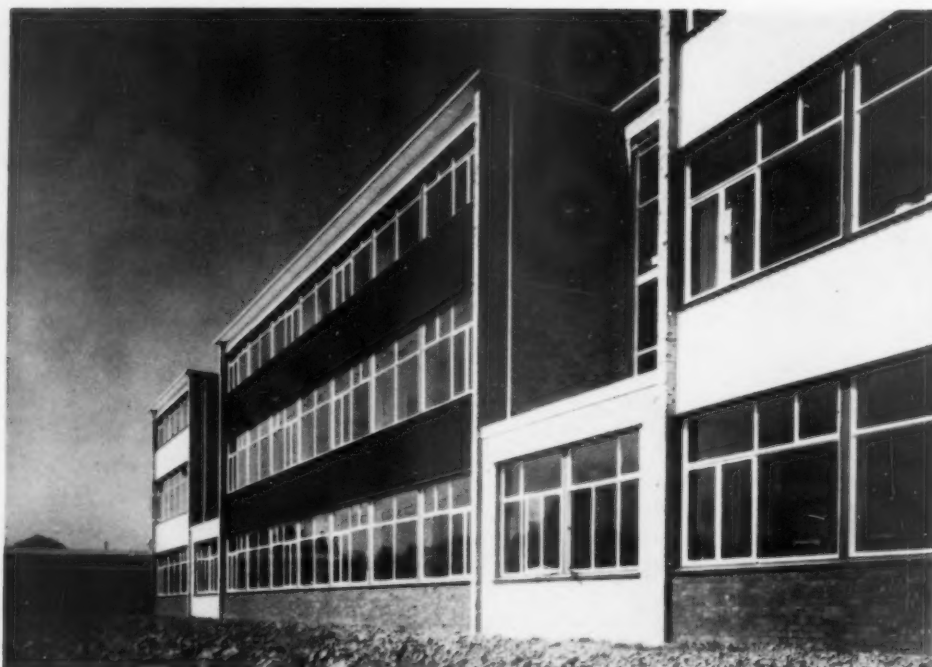
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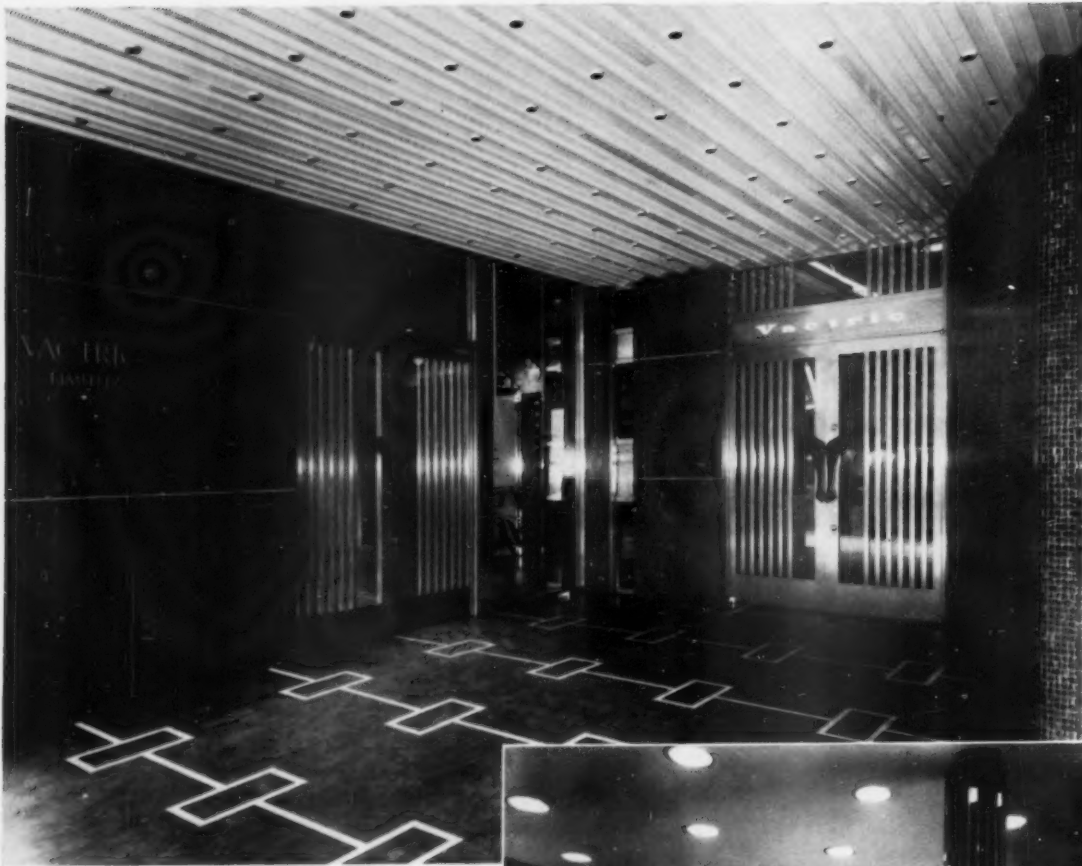
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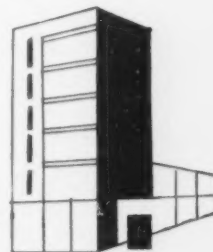
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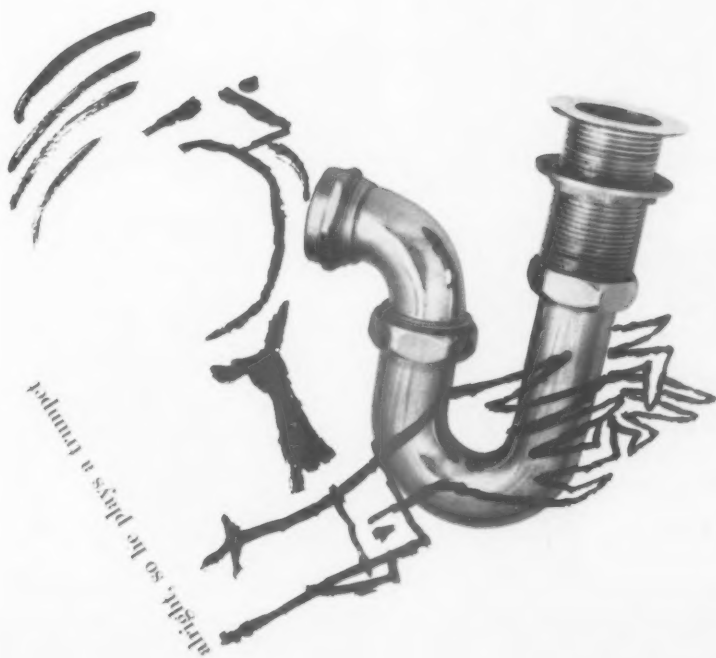
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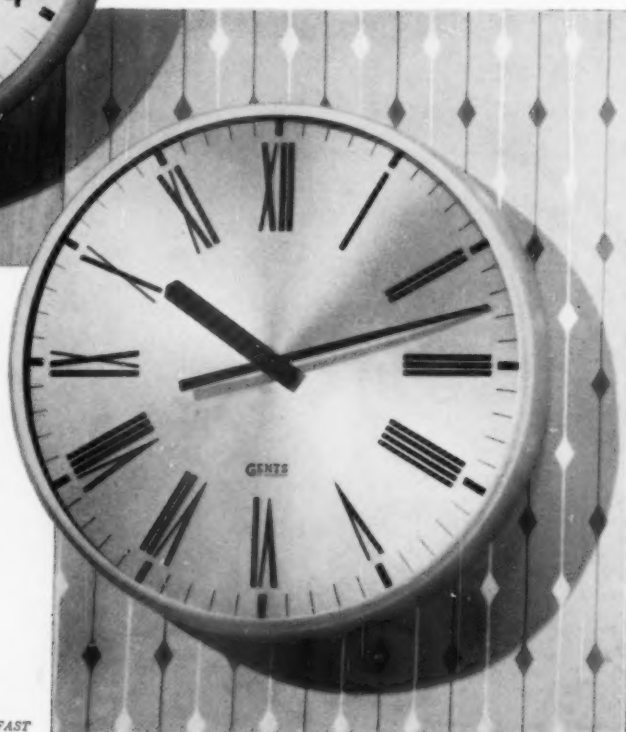
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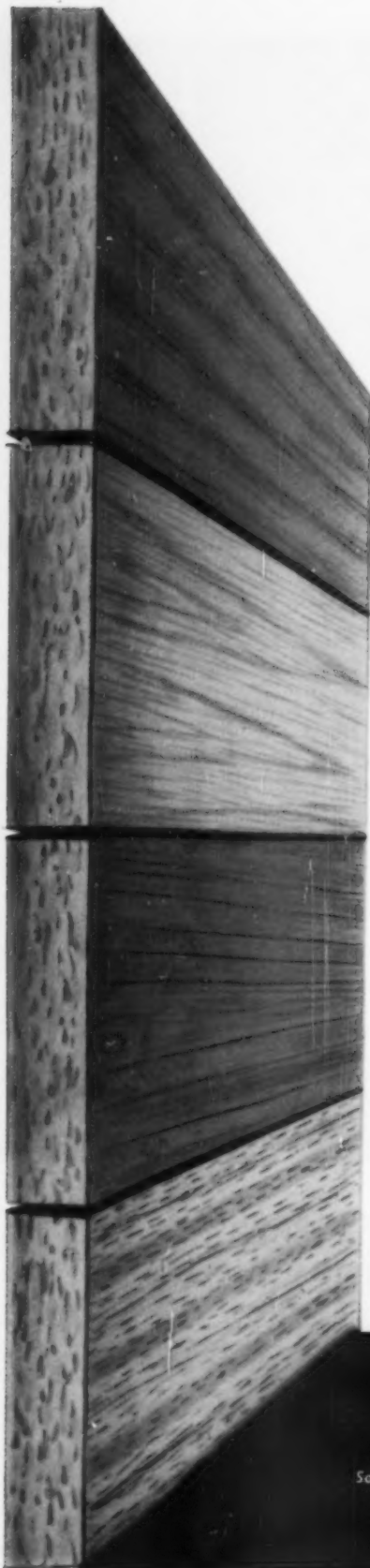
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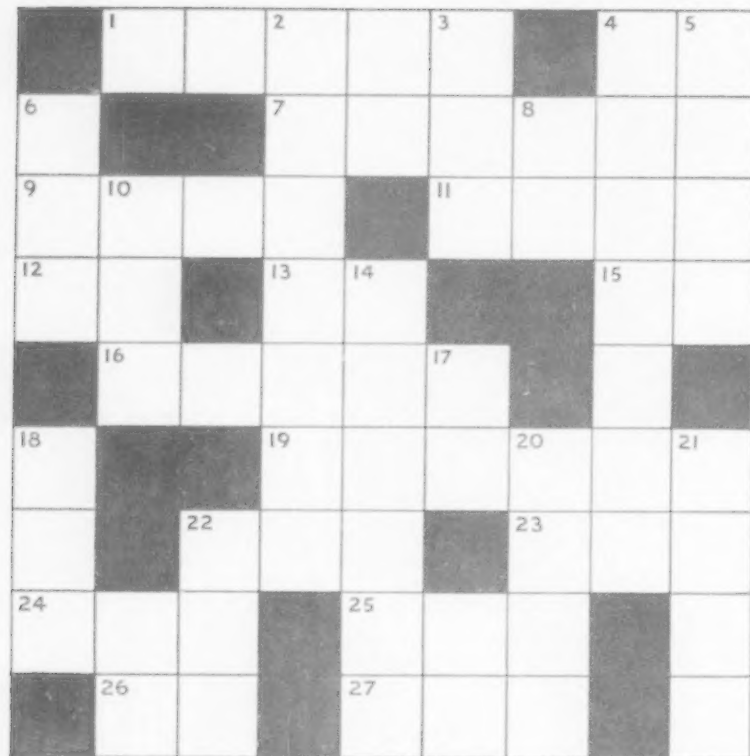
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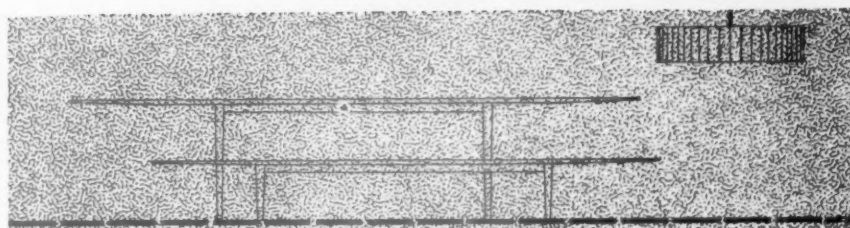
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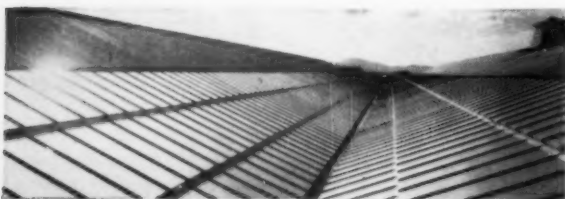
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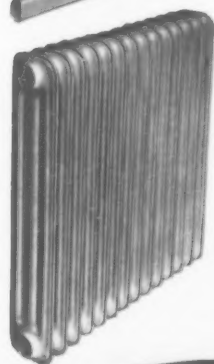
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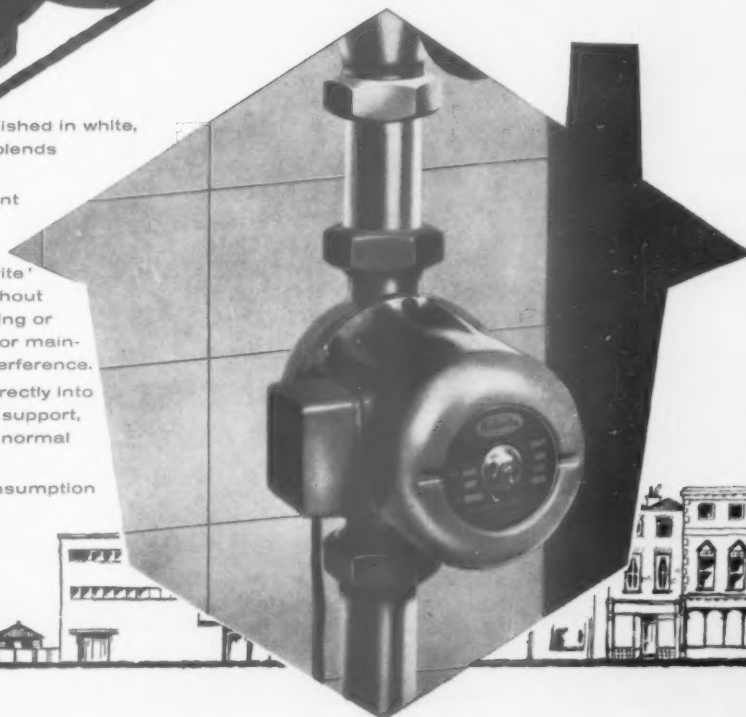


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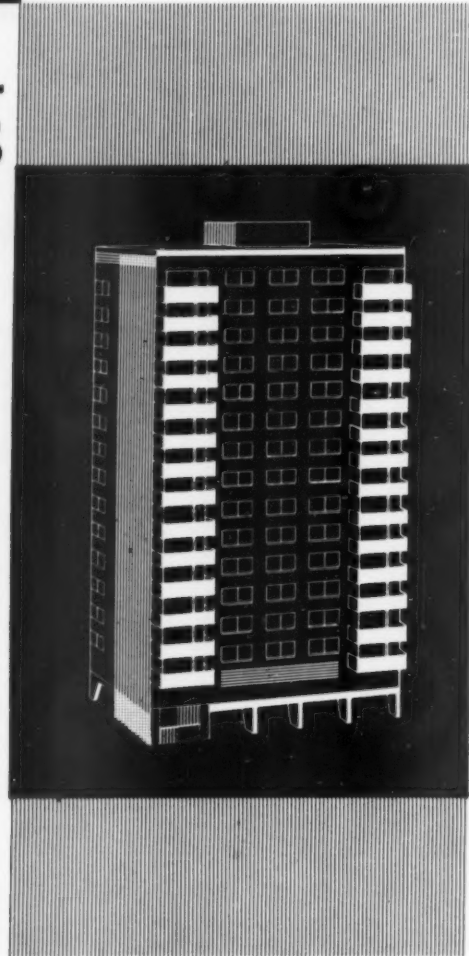
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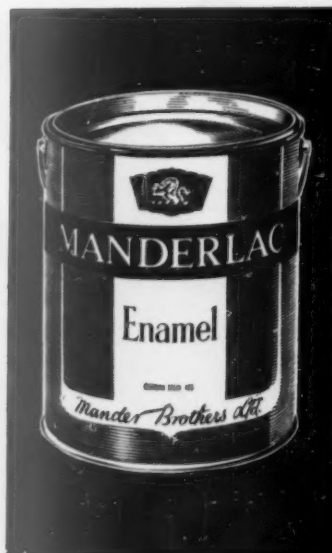
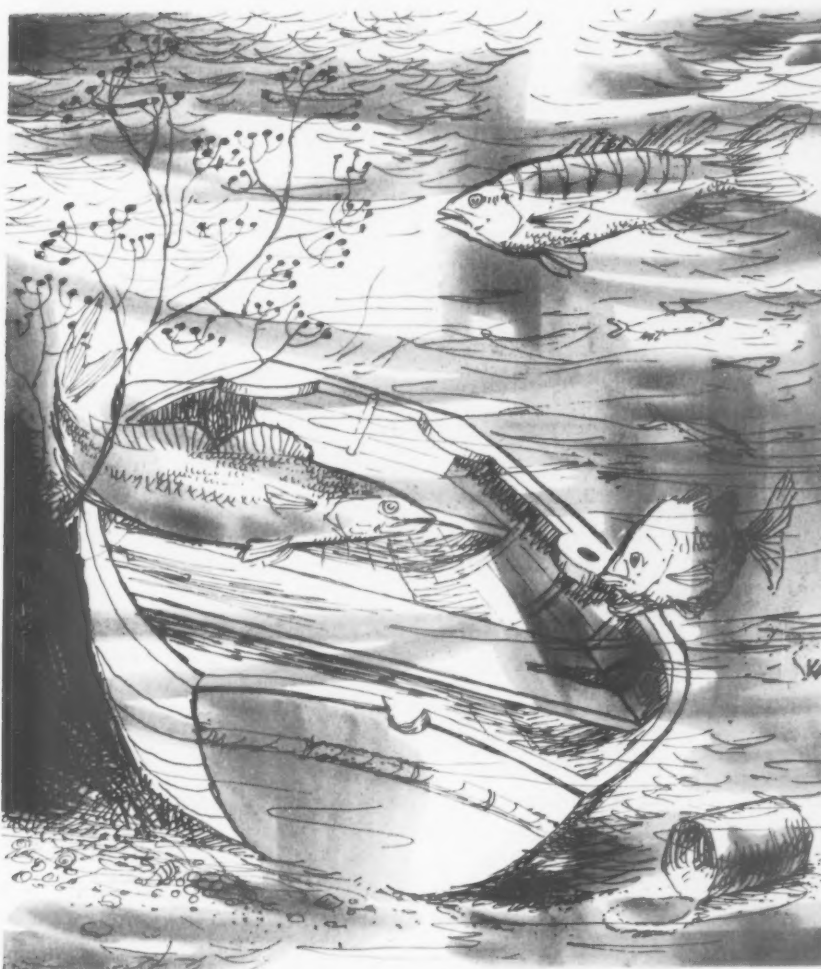
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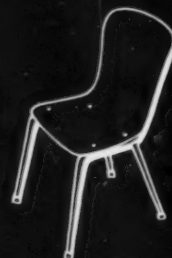


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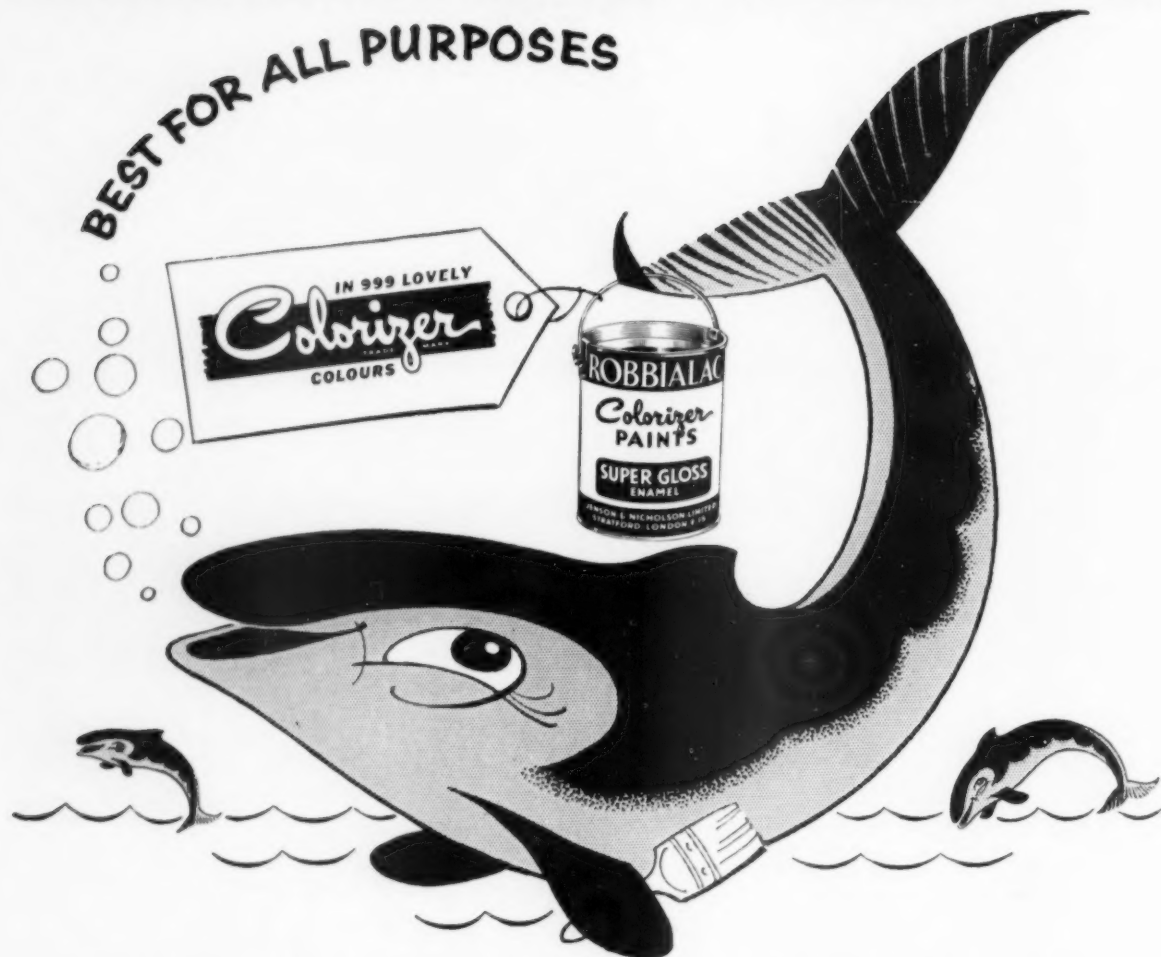
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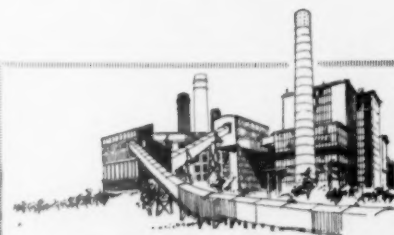
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Bowaters' chose coal many years ago for their main fuel requirements at Kemsley—and still do."

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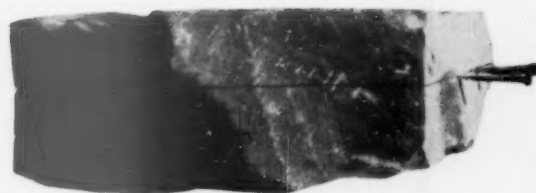
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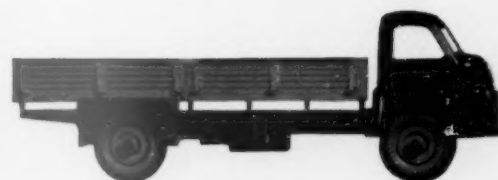
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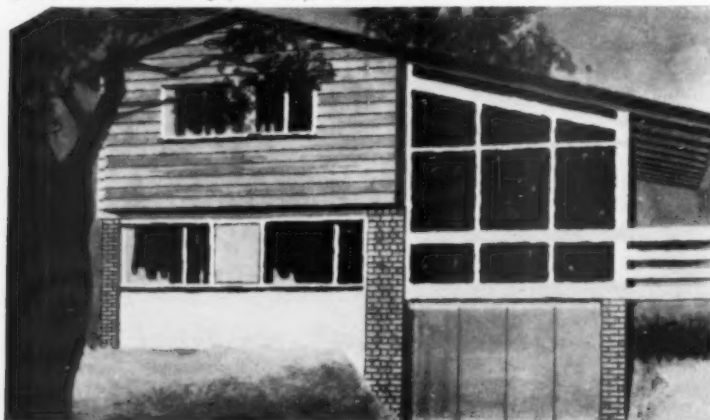
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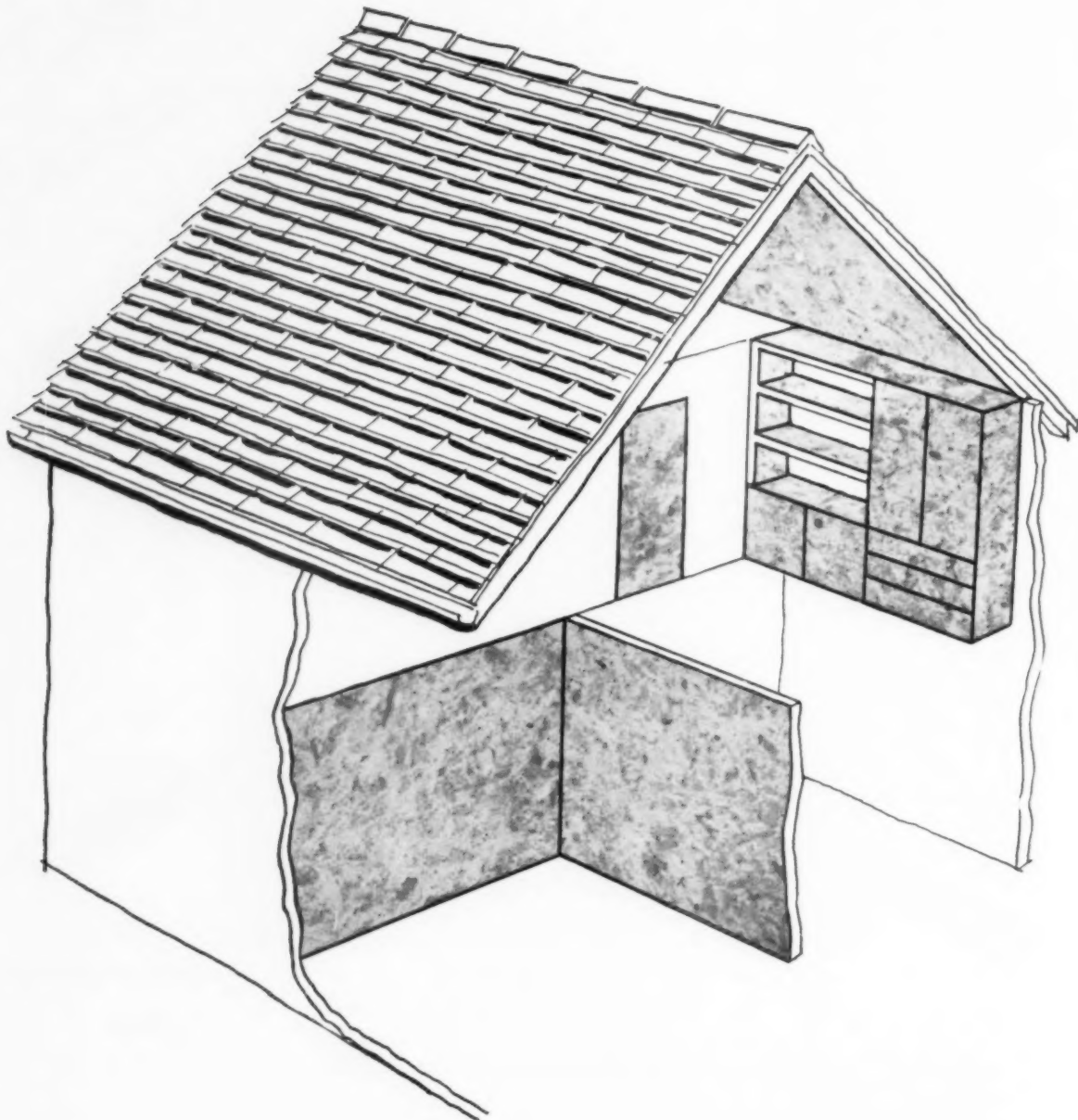
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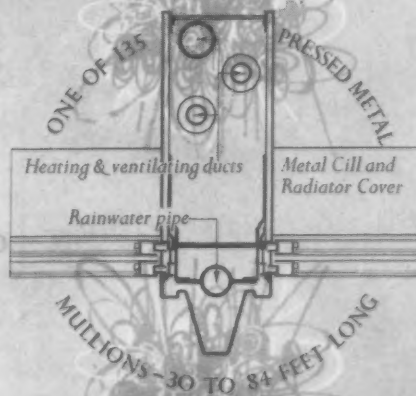
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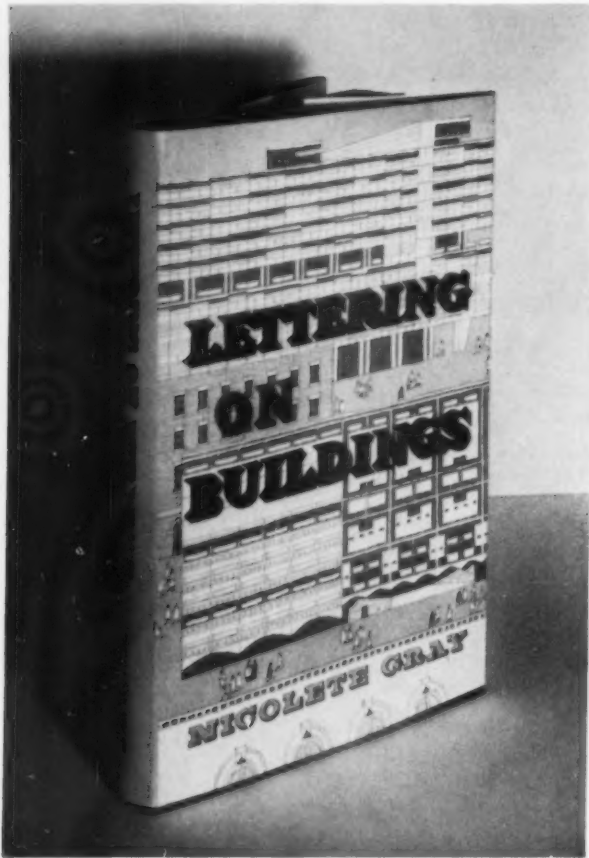
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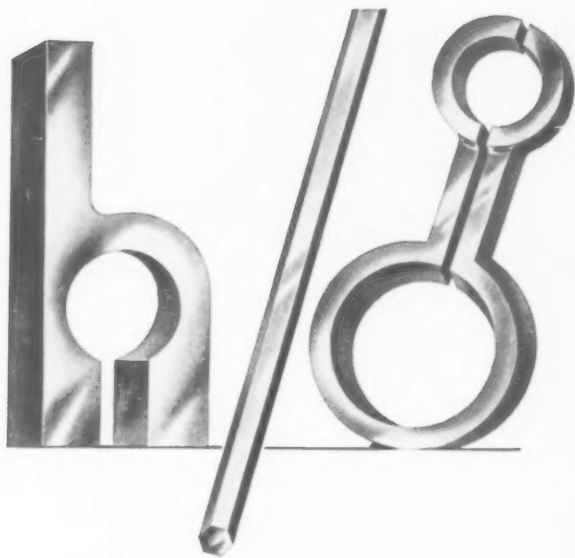
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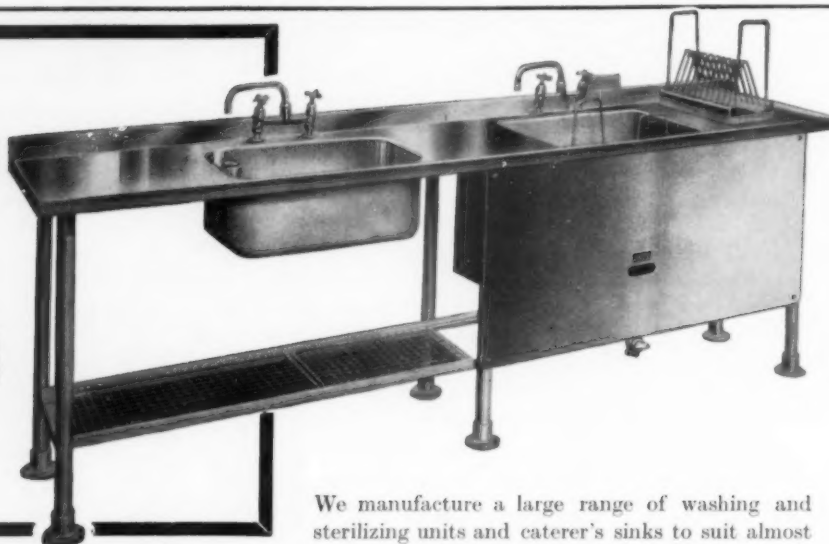
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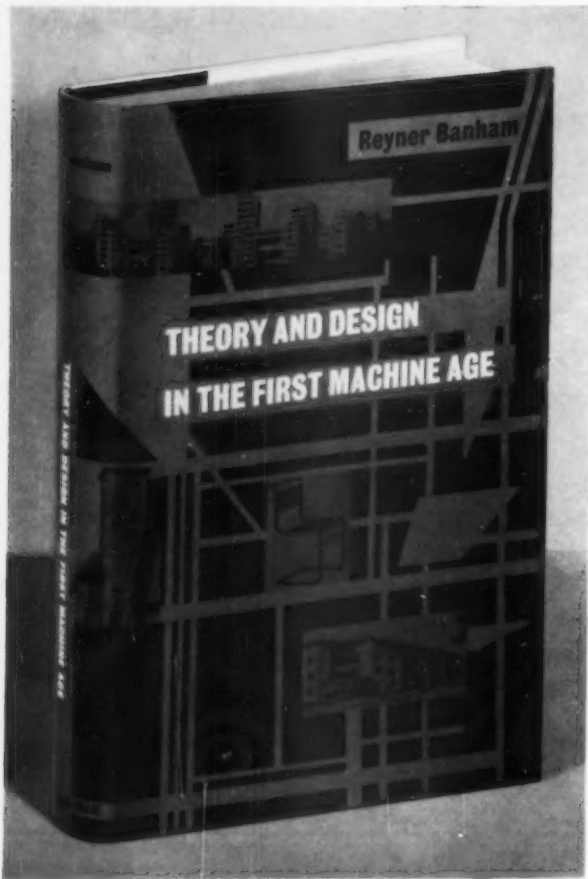
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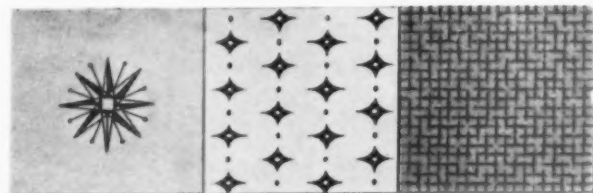
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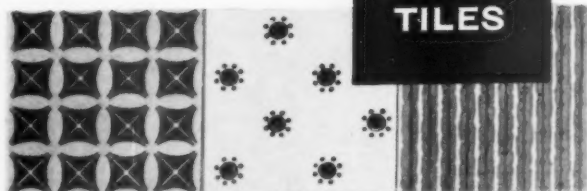


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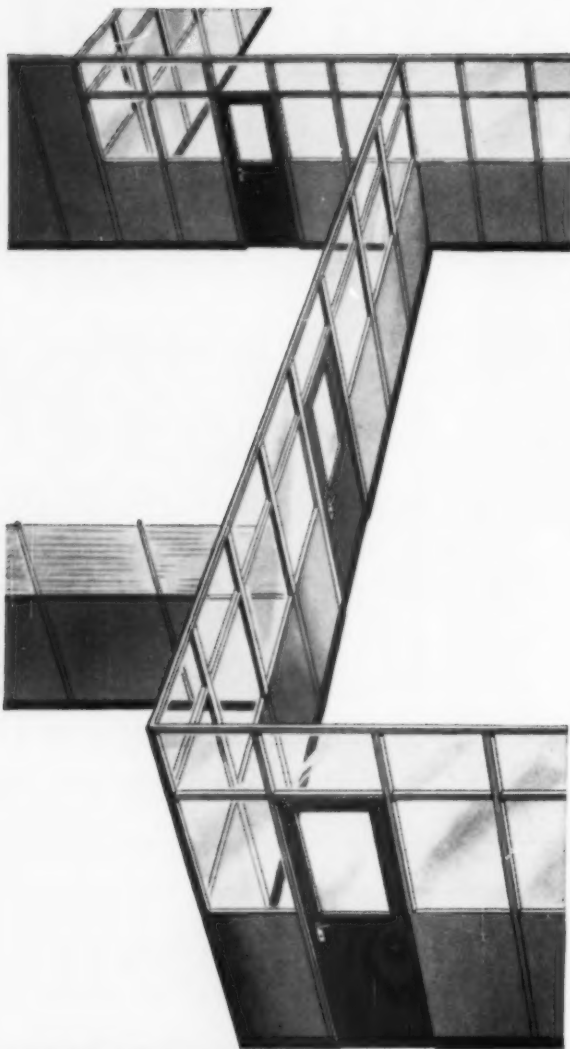
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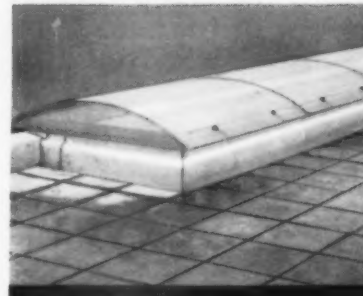
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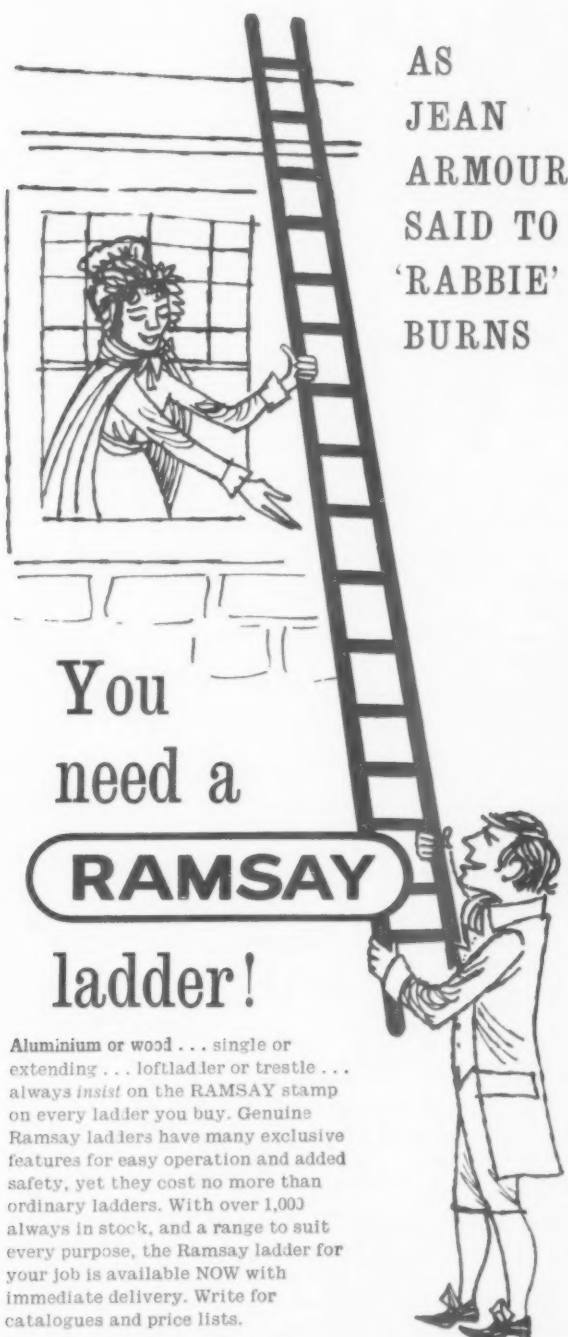
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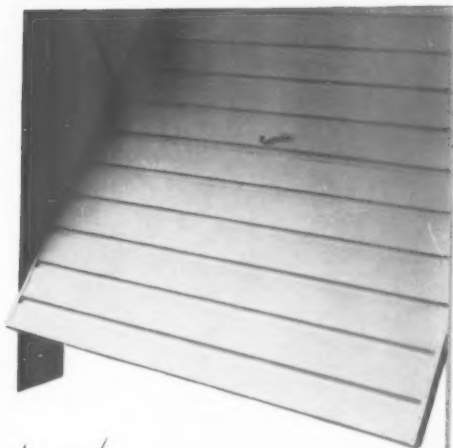
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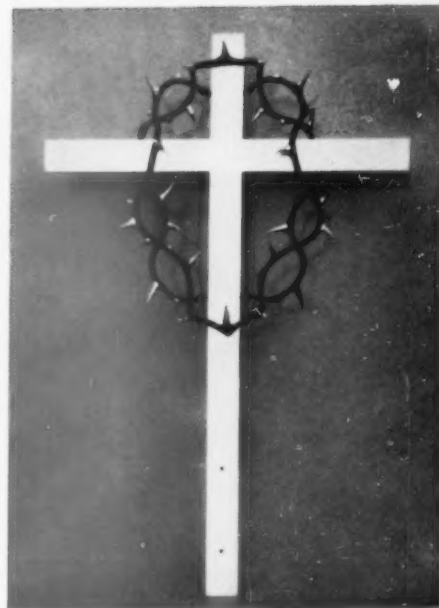
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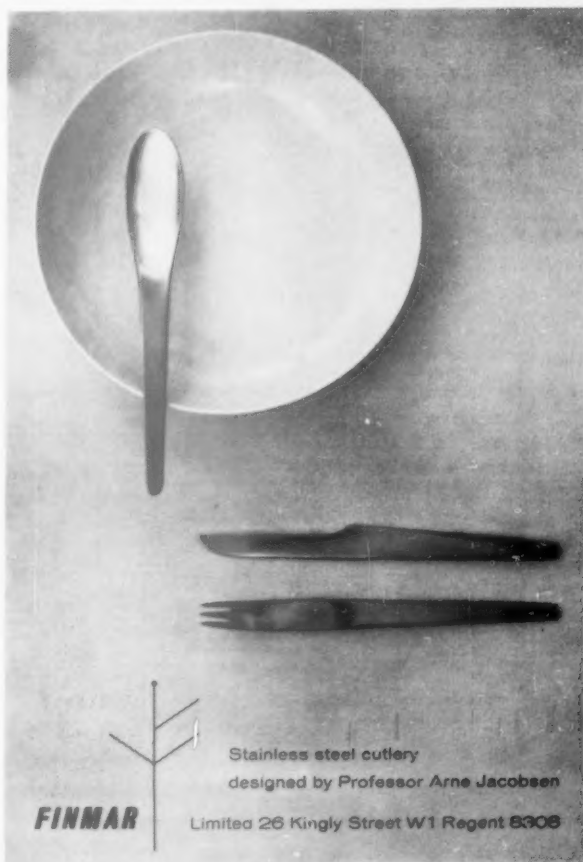


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